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The gendered effect of losing an election and its consequences on descriptive representation

by

Agustín Vallejo

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APPROVED, THESIS COMMITTEE

Mark Jones, Chair
Joseph D. Jamail Chair in Latin American Studies

Leslie Schwindt-Bayer
Professor of Political Science

Keith Hamm
Edwards Professor of Political Science

Douglas Schuler
Professor of Business and Public Policy

HOUSTON, TEXAS
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ABSTRACT

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As in many other aspects of life, politics is not a one-shot-game. Most of the time it requires candidates running and losing several times before getting elected. By running and losing candidates can learn from their mistakes and be better known among voters in future elections. However, not all individuals decide to continue with their political careers after an electoral setback.

In this dissertation I analyze gender differences in candidate persistence, defined as the probability of running for office in following elections. My main hypothesis is that the effect of losing an election on political ambition is stronger for women than for men. In particular, I argue that women are less likely than men to continue running for office after losing an election.

I also argue that this gender gap may have consequences on representation because candidates with prior experience in elections – candidate experience – are more likely to be elected.

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Contents

List of Tables

List of Illustrations

Chapter 1: Introduction

1.1 Motivation

As with many other aspects of life, politics is not a one-shot game. Most of the time, it requires candidates running and losing several times before getting elected. By running and losing candidates can learn from their mistakes and be better known among voters in future elections. However, not all individuals decide to continue with their political careers after an electoral setback. The decision of running for office always implies putting aside or postponing personal and professional commitments. Candidates who postponed these types of commitments to run for office and lose may experience disappointment and frustration. In some cases, this feeling of frustration can be strong enough to discourage them to continue running for office. Consequently, these candidates face a paradox: running for office and losing may make them more competitive candidates in future elections – because they would have some previous experience running for office – but at the same time, it may also quench their desire to continue running for office.

Political scientists have referred to the desire to run for an elective office as political ambition. Scholars on political ambition have shown that personal characteristics of individuals can shape or hinder a political ambition. Among these studies, a large body of literature has studied the fact that women are less politically ambitious than men. This literature has shown that this gender gap exists among elected officials, who have to decide among running for higher higher-ranking, running for reelection and retiring, and among potential candidates, who have to decide whether to run for office or not. However, gender differences among those candidates who run and lost, who have to choose whether

to persist on running despite losing and retiring, are still unexplored. If cultural factors make women less likely to run for office, or when they already hold an office less likely to run for a higher-ranking office, we may expect a correlation for candidates who had run and lost. In this dissertation, I seek to fill this lacuna by answering the following questions: Are there gender differences in the reaction to an electoral setback? If so, what are its consequences?

In this dissertation I use the candidate persistence, defined as the probability of running for office in following elections, as measure of political ambition. My main hypothesis is that the effect of losing an election on political ambition is stronger for women than for men. In concrete, I argue that women are less likely than men to continue running for office after losing an election.

I also argue that this gender gap may have consequences on representation because candidates with prior experience in elections – candidate experience – are more likely to be elected. Recent research has shown that candidates can benefit from previous experience running for office even in those cases where they lost. By knowing who were the competitive candidates in an election, voters can coordinate a strategic vote against the incumbents in future elections (Anagol and Fujiwara, 2016). Moreover, previous experience as candidate can also increase candidates' chances of winning when they run for different offices and not just the office where they got their experience as candidates (Haime, Vallejo & Schwindt-Bayer, 2017). Then, if women were less likely to persist as candidates after losing an election than men, the proportion between old-comers versus

newcomers would be smaller for women than for men. Consequently, because of their previous experience as candidates, men would be in a better position than women to get elected.

To address these questions, I focus my analysis on the city council elections in Brazil from 2000 to 2016 for several reasons. First, legislative elections in Brazil are held under open list-proportional representation, a candidate-centered electoral system where candidates compete for the seats at stake with all the other candidates. That means that in order to get elected a candidate needs to be in a competitive party-coalition – which win seats – but also she needs to get more votes than the other candidates from her own party-coalition. Consequently, intra-party competition in Brazilian election means that to get elected a candidate has to differentiate from his co-partisan. Therefore, campaigns and also the effect of losing are both candidate-centered. Second, due the introduction and regulation of gender quotas, which mandates that political parties-coalitions fill at least 30% of their candidacies with women, Brazilian legislative elections present a number large enough of men and women running for office. Then, Brazilian legislative elections offer a sufficient number of men and women to test gender differences in candidate persistence. Moreover, elections at the city council are the Brazilian election with fewer barriers to run for office. The cost of an electoral is also relatively low in comparison with other Brazilian election. Consequently, city council elections are the place where most newcomers choose to start their careers. Finally, candidate self-nomination is the most common way to become a candidate. In comparison with other countries, gatekeepers in Brazil have a relatively low role in recruiting. Thus, the decision of running or not largely lies on the candidates.

1.2 Plan of the Dissertation

The first argument of this dissertation is that there are gender differences in the reaction to an electoral setback. The second thesis is that the gender gap in the reaction to an electoral setback has consequences on representation. To test these arguments, the dissertation is divided into six chapters. Chapter two reviews the literature, establishes the theory, and describes the Brazilian city council elations used to test my theory in the following chapters. Chapter three tests the presence of a gender gap in the effect of losing on candidate persistence. Chapter four addresses the impact of having candidate experience on the probability of being elected. In chapter five I estimate the magnitude of the effect of the gender gap in candidate persistence on the percentage of women elected in the Brazilian city council.

In chapter two I review the literature on political ambitions. In particular I review those studies that focus on differences in political ambitions between men and women. I place my work within this literature, establishing what is the gap in the literature and what is my contribution. Based on previous literature, I establish a theory to argue that, among candidates who lost an election, women are less politically ambitious than men because they perceive themselves as less qualified to run for office than their male counterparts with equal qualifications. Losing an election has a stronger negative effect on women's than on men's self-perception of their qualifications as candidates. Finally, I describe the characteristics of the city council elections in Brazil and why they constitute an excellent environment to test my theory.

Chapter three tests whether there is a gap in candidate persistence between men and women. I conduct a regression discontinuity analysis with candidates who won or lost by a small margin of votes to predict their probability of rerunning for office in the next election. I find that, even though losing a seat has a negative effect on candidate persistence for both genders, the effect is stronger for women. I also run a second analysis on candidate persistence using an ordinal logistic model. Here, the dependent variable differentiates between running for the same office from running for different offices in the next election. The results of the second model are consistent with the first analysis.

In chapter four I explore how candidate persistence improves a candidate's chances to get elected. Using previous candidate experience in city council as the main independent variable, I explore how this variable effects, for each gender, the probability of being elected and the vote share obtained in a given election. Based on those estimations, I calculate the predicted probability of winning a seat for each of these four categories: men/women with no candidate experience (first-time runners) and men/women with candidate experience (those who ran and did not get the seat). Results suggest that having previous experience as candidates increases the chances of being elected for men and women.

Chapter five explores the consequences of the gap in political ambitions at the city chamber level. The dependent variable is the percentage of women elected in each municipality, while the independent variable of interest for this analysis is the percentage of men and women running with candidate. Using these estimates, I run simulations to

predict the percentage of women that would be elected if there were no gender gap on candidate persistence, i.e. if the proportion of male and female candidates with candidate experience would be equal. I find that, if there were no gender gap on candidate persistence, the percentage of women in office would increase in 2.5-3.5%.

In the conclusion, I recapitulate and summarize the core arguments and findings of the previous three chapters. Moving beyond the findings themselves, I consider further research for countries with other electoral rules. I also discuss the implications of the findings of this dissertation on other fields.

Chapter 2: Literature and theory

2.1. Political ambition and gender

The desire of politicians to run for an office was denoted by political science with the term *political ambition* (Schlesinger, 1966). Political ambition can refer to the desire of officeholders to run for reelection (static political ambition), to run for a higher office (progressive political ambition), or a lower level office (regressive political ambition). Political ambition can also refer to a non-office holder desire to run for office (nascent political ambition). That being said, political ambition refers to the desire to run, not to the concrete act of running and throwing the hat into the ring. In other words, political ambition is a necessary but not a sufficient condition for running for an office. In the cases where an individual effectively decides to run for a specific office, it can be said that the candidate converted her initial nascent political ambition (be it static, progressive or regressive) into an expressive political ambition.

Political ambition is a key concept to understand political careers and has been studied accordingly (Schlesinger, 1966; Black, 1972; Rohde, 1979; Fowler, 1989; Herrick and Moore, 1983). Studies have documented its influence on a range of areas in political science including candidate emergence (Maisel & Stone, 2014; Stone & Maisel, 2003 Canon, 1993; Fox & Lawless, 2011; Kazee, 1994), legislative behavior (Herrick, 1993; Meserve, 2009; Maestas, 2003; Nacif, 2012; Samuels, 2003; Micozzi, 2012), gender representation (Farah, 1976; Burt-Way & Kelly, 1992; Tule, 1981; Palmer & Simon,

2003; Fulton, Maestas, Maisel & Stone, 2006; Fowles, 1984; Sapiro, 1980), and racial and ethnic representation (Johnson, Oppenheimer & Selin, 2012; Perkins, 1986; Stone, 1980; Shah, 2015; Lawless, 2012).

The literature has focused on two main sets of variables that shape political ambition: variables related to the political opportunity structure, and variables related to personal characteristics of the politicians. On one hand, the political opportunity structure refers to the politicians' (or politicians to be) perception about the concrete environment where they make decisions about their political career (Schlesinger, 1966, Black 1972; Levine and Hyde 1977). On the other hand, scholars have shown that personal attributes of politicians, or potential politicians, such as age, gender, race or family commitments could shape (or hinder) political ambitions (Lasswell, 1948; Solue, 1969; Barber, 1965; Fisher, 1971). In this dissertation, I analyze how personal characteristics affect political ambition, and I specifically focus on the effects of gender.

Several studies have found that gender is a relevant factor for shaping a political ambition (Jennings & Thomas, 1968; Constantini & Craik, 1972; Kirkpatrick, 1976; Farah, 1976; Hoag & Farah, 1975; Fowlkes, Perkins, & Rinehart, 1979; Sapiro & Farah, 1980; Jennings & Farah, 1981; Constantini and Bell, 1984; Arceneaux, 2011). These studies have claimed that women are less politically ambitious than men. These differences in ambition have resulted in fewer women running for office (Lawless & Fox, 2005, 2012); and among those women who already have offices, the differences in ambitions have resulted in the lower propensity for women to run for higher-ranked offices (Mariani, 2008).

Consequently, the literature agrees that a gender gap in political ambition leads fewer women to occupy political offices.

Jennings and Thomas wrote one of the first studies that explored the gender differences in political ambition. They found that among Michigan's delegates from both Republican and Democratic National Convention, women were less likely run in primaries or general elections, and when they did enter these electoral competitions they were less likely to win than men (Jennings & Thomas, 1968). Other studies have compared the different backgrounds of men and women politicians (Jennings & Farah, 1981), how the type of office at stake shapes the ambitions (Sapiro & Farah, 1980), or if it is an aversion to compete or to hold the office (Kanthak and Woon, 2014).

Other studies have found that under certain circumstances the differences in ambition between men and women could disappear. For example, after conducting surveys among Californian party activists and party leaders, Costantini has found that the ambition gap between men and women tended to become progressively smaller between 1968 and 1984, particularly in the Democratic Party (Constantini, 1990). Susan Carroll has argued that the gender gap in political ambitions disappears when controlling for office holding (Carroll, 1985). She has found that between potential candidates, women seem to be less politically ambitious than male. However, between officeholders, women show the same levels of political ambition than their male counterparts. Consistently with these findings, in Comparative Politics, Schwindt-Bayer (2011) has found that female legislators from

Argentina, Colombia and Costa Rica show similar desires to run for reelection for higher offices as their male counterparts.[1]

There are three main arguments for why women could be less politically ambitious than men. First, some studies have argued that social and family commitments affect men's and women's political ambition differently (Carrol & Strimling, 1983; Kirkpratrick, 1974; Sapiro, 1982; Carrol, 1983; Mazey 1978; Thomas and Braunsten, 200; Werner, 1966; Lawless & Fox, 2005, 2010; Fowler & McClure, 1989; Fox, 1997; Carroll 1985; Deber, 1982;; Werner, 1966; Burt-Way & Kelly, 1992; Mariani, 2008). Other studies have focused on how socialization affects the ambition of men and women differently (Frieze et al, 1978; Constantini & Craik, 1977; Lee, 1976; Fox and Lawless 2014b; Carroll, 1985; Johnson & Carroll; Fowlkes, 1984; Fox, Lawless & Feeley, 2001). Finally, a third set of studies have focused on the candidates' qualifications (Darcy, Welch & Clark, 1994; Fowler & McClure, 1989; Sanbonmatsu, 2010; Fox & Lawless, 2005, 2011; Lawless & Fox, 2005, 2010, 2004; Lawless, 2012). In the following sections I will review how family commitments, socialization and the qualifications of women can affect their decisions to run for office.

2.1.1 Family commitments

The first argument focuses on the different roles men and women have in terms family commitments. According to previous research, women tend to spend more of their time

[1] Unfortunately these studies just looked at the desire to run and not at the effective realization of that desire, which can be hindered by party structures (Fox and Lawless, 2005).

doing housework. In addition, when both men and women have to carry out housework, men are more likely to run regardless of having housework. Finally, both these issues lead women to tend to run for office at a later age than men do. Having more housework, prioritizing housework, and running at later ages are explanations previous research has used to explain why women have less political ambition.

The first characteristic about family commitments that is relevant to political ambition is that, women spend more time on housework and childcare than men do (Burns, Schlozman, & Verba, 2001; Galinsky & Bond, 1996l Verba Schlozman & Brady, 1997). A consequence of this is that women have less time to build a political career. Because of this, women are less likely to form a desire to run for office, not because they are women, but because they lack the time necessary to run for office. Even in situations where women do form a desire to run for office, in order to execute it, they would have to reconcile a political career with their other responsibilities—housework, and childcare. In contrast, men who develop political ambition will not need to deal with the same type of family and social commitments (Lawless & Fox, 2005, 2010).

In addition to having fewer family commitments, Sapiro (1982) has shown that men are more likely to develop and pursue political ambitions in presence of family commitments. Contrastingly, women are inclined to decline their political ambitions for the same type of commitments. Moreover, men run for office without regard the age of their children while women tend to wait until their children are grown to start a political career (McClure, 1989; Fox, 1997; Carroll 1985b; Deber, 1982; Kirkpatrick, 1974; Werner, 1966). The

fact that women wait for their children to grow up before running means that women start their political careers at a different age than men (Carrol & Strimling, 1983; Kirkpratrick, 1974; Sapiro, 1982; Carrol, 1983; Mazey 1978; Thomas and Braunsten, 200; Werner, 1966).[2] Mariani (2008) has found that female elected officials tend to be older, and this is because they run for office at older ages.

The older ages of women when running for office can be seen as another facet of disadvantages for women. The older a legislator is, the less likely that legislator is to express progressive ambitions, to run for a higher-level office, and the less likely that legislator is to win an office when running (Hain, 1974). Consequently, another reason why women express lower levels of progressive ambition than men is because they start their political careers at a later age (Mariani, 2008).[3]

In sum, according to this literature, women are less politically ambitious than men because they react differently than men to family and personal commitments. However, most of these articles were written during the seventies and the early eighties, and they describe an image of women of that period. During the last two decades the role of women in society has sharply changed, and nowadays women have a more active role in industries and particularly in politics (Inglehart & Norris, 2003). Given these limitations, the literature

[2] Contrary to these findings, Burt-Way and Kelly conducted surveys among city council office holders in Arizona and they did not find that female city council members were older than their male counterparts (Burt-Way & Kelly, 1992).

[3] In contrast with these results, Fox and Lawless have found among potential candidates that family commitments does not affect considering running for office or effectively running for office regardless their gender (Fox and Lawless, 2004, 2014a).

suggested other explanations for the gender gap in ambitions more according to the actual role of women.

2.1.2 Socialization

The second set of studies has argued that differences in political ambitions between men and women are the product of socialization. By socialization, scholars have referred to a cultural process that starts in childhood and conditions women's propensity to accept politics as a "male sphere." This can affect women's political ambitions either because they accept (socialization) or reject (counter-socialization) those socialization processes.

Society has different expectations for men and for women. In contrast with men, women are expected to be more politically passive and home-oriented (Frieze et al, 1978; Constantini & Craig, 1977; Lee, 1976). Fox and Lawless have found differences in ambition between high school and college students. Their evidence suggests that early socialization factors, such as parental encouragement, sense of self-confidence, or politicized experiences, shape future political ambition (Fox & Lawless, 2014b).

Complementary with the studies on socialization, some scholars have argued that there could also be a counter-socialization effect (Fowlkes, 1984; Clark, Hadley and Darcy, 1989; Fox, Lawless and Feeley, 2001; Clark, Hadley and Darcy, 1989). Fowlkes introduced the concept of counter-socialization to refer to the process of women developing political ambition despite socialization. As a reaction of socialization, some women who experienced different stimulus can acquire values and expectation opposite to

the dominant norms, including, developing political ambitions (Fowlkes, 1984). Previous research has argued that things that can lead to a women engaging in a counter-socialization process are: coming from a politically active family (Fowlkes, 1984; Clark, Hadley and Darcy, 1989), involvement in associations (Fox, Lawless and Feeley, 2001; Johnson & Carrol, 1978; Sapiro & Farah, 1980), profession (Kirkpatrick, 1976) and ideology (Carroll, 1985; Johnson & Carroll; Kirckpatrick, 1976).

As in the case of family commitments, the socialization theory makes a picture of women that seems to belong to previous decades. Socialization patterns have changed during the last decades regarding work and family life (Conway, Steuernagel & Ahern, 2005; Hesse-Biber & Carter, 2000). Social expectations for men and women are not as different as in previous decades, and the gender gap in political ambition cannot be explained just by arguing gender differences in socialization.

2.1.3 Qualifications

Finally, the last set of bibliography argues that women are less politically ambitious for a matter of qualifications. A first set of studies has argued that women are less politically ambitious than men because women do not have the qualifications and backgrounds required to run for office. A second battery of studies has claimed that what shapes political ambition are not the individuals' qualifications but their self-perception about their qualifications.

On one hand, some scholars have looked at the candidates' backgrounds and found that party recruiters usually draw candidates from income and occupational groups that women were excluded from until a couple of decades ago. Then, fewer women are being recruited for not having the qualifications that party recruiters were looking for (Darcy, Welch & Clark, 1994). This argument does not seem to be valid to explain the actual gap in political ambition. In the latest decades, women have closed the gender gap in qualifications. For example, since 2014 the number of women with college degrees in America is larger than the number of men with college degrees (US Census Bureau, 2018).

More recently, other scholars have argued that it is not a matter of qualifications per se, but what really matters are the politicians' perceptions about their own qualifications. For example, in a qualitative study, Fowler and McClure found that female potential candidates show more insecurities about their credentials as candidates, which leads to procrastination on their campaign duties, and eventually, withdrawing the candidacies. They described the Louise Slaughter's first attempt to win the candidacy in the Democratic Party for the New York's 30th congressional district in 1984 (Fowler & McClure, 1989). In that study, she recalled: *"I kept putting up barriers and thought of excuses, because in some ways I was afraid to go after it. I wasn't afraid of the tough race, but that somehow I wouldn't be considered qualified, or taken seriously"* (Fowler & McClure, 1989: 113).

Sanbonmatsu documented the same phenomenon from the recruitment perspective. She has argued that one of the most difficult tasks of party recruiters is convincing women to

run. In contrast with men, women are less likely to plan during their lives a political career. Then, when the opportunity of running for office appears, they tend to think that they were not qualified enough to become a candidate (Sanbonmatsu, 2010). She documented the testimony of Jennifer Veiga, an Assistant House minority leader from Colorado, who said: *"Men are much more willing to jump into it than women. You need to push women a lot harder to do it, and for whatever reason, they feel like they're not as qualified or they're not as ready"* (Sanbonmatsu, 2010: 126).

Also, Jennifer Lawless and Richard Fox have shown, through a large number of studies based on surveys conducted to potential candidates, that women consider themselves less qualified than men, with the same level of qualifications (Fox & Lawless, 2005, 2011; Lawless & Fox, 2005, 2010, 2004; Lawless, 2012). They have found that the initial consideration of running, i.e. nascent political ambition, among potential candidates depends on the self-perception on qualification as candidates (Fox & Lawless, 2005). They have also found that women tend to perceive theirs as lower than men (Lawless & Fox, 2006, 2010), but also that perception could change across time (Fox and Lawless, 2011; Lawless, 2012).

2.1.4 Concluding remarks

The literature reviewed so far has shown that there is a gap in political ambition between men and women. Men are more politically ambitious than women, and there are three different explanations for this gap in political ambitions: the way individuals respond to family commitments is different by gender, the process of socialization creates different

socially desirable expectations for men and women, and the self-perception about the skills as candidates are different among men and women. These explanations are not mutually exclusive, and the gender gap in ambition could be a result of a mix of factors. Based on these three explanations, the literature has shown that women are less likely than men to run for office, and consequently, women are underrepresented among elective offices. However, most of these studies analyze women's ambition to run directly. I argue that we may observe manifestations of the gap in ambition in other behaviors that also have consequences on representation.

If we imagine politics as a game that usually requires running more than once to get elected, candidates can learn from running for office even in those races where they lost. Therefore, we must consider that overcoming an electoral setback is crucial for any political career. However, if a group of politicians is particularly less prone to get over losing an election than another group of politicians, individuals from the former group may be less likely to be elected. In this dissertation, I focus on the effect of an electoral setback on political ambition, and its gender difference. If women are more likely to feel under-qualified when running for office, we can expect that running and losing may reinforce that perception. Moreover, women's political ambition can also be more sensitive to changes in personal and family commitments that may occur between elections, reinforcing the socialization stereotypes. Consequently, lower levels of political ambition among women may lead to women underrepresentation not just as the result of fewer women running (Lawless & Fox 2005, 2010), but also as a result of fewer women overcoming losses and persisting in their political careers.

In the following section, I elaborate a theory of political ambitions for candidate persistence with different expectations by gender. Doing so, I contribute to the study of political ambitions by looking at how facing an electoral setback changes individuals' political ambitions. To pursue that goal I will look at the candidates' decision to rerun after losing an election, an unstudied dimension of political ambition. It also may contribute to the study of gender in two ways. First, I look at gender differences on rerunning rates, and second, I look are the consequences on representation of the gender gap in rerunning rates. Finally, this dissertation uses data from elections in Brazil and for that reason it contributes to the study of ambitions in Latin America. In this sense, it represents one of the few studies that explain women's representation in Brazil from a political ambition perspective.

2.2. A theory of gender gap in candidate persistence and its consequences in representation

In this section I develop a theory for a specific manifestation of political ambition: the persistence of candidates. By candidate persistence I refer to the behavior of some candidates who have lost an election, and who insist on re-running for the same office in future elections. Persisting in elections expresses how strong a candidate's political ambition is despite an electoral setback. Those candidates who decide to persist in running for office have the experience of having run for office previously, and they can use it as an advantage. However, losing a race may have a negative effect on their willingness to run for office in future elections. I will also argue that there are theoretical reasons to think

that the effect of losing a seat on the candidate persistence is different between men and women.

Let's start with an example. Let's think of Candidate *i* who decides to run for office for the first time in his life. Candidate *i* thinks he is prepared enough to run for and to hold office *o*. He thinks he could balance his personal and professional duties so as to give him room to start a political career, so he decides to invest resources such as time and money and throw his hat into the ring. Let's note here that candidate *i* moved from a nascent to an expressive ambition. As any candidate who runs, candidate *i* can get two possible outcomes: winning or losing the seat. If he gets the seat, his beliefs about his skills for running and winning an election would be updated positively, and after his period in office o, he will have to choose between retiring, running for reelection or running for a different office. If he decides to run again (for the same or for a different office) candidate i would have two advantages in comparison with his previous race: he would have the advantage of having run an election before (Haime, Vallejo and Schwindt-Bayer, 2017) and the advantage of holding an office, usually referred as the incumbent advantage (Mayhew 1974; Fiorina 1977; Abramowitz 1975; Cover and Brumberg 1982; Herrnson 1998; Mann and Wolfinger 1980; among others). But the interesting story takes place if he loses. If he loses the seat he also will have to choose between retiring or running for the same or a different office. If he decides to run again in future elections he would still have the advantage of having the experience of being a candidate (Haime, Vallejo and Schwindt-Bayer, 2017; Anagol and Fujiwara, 2016). However the fact of losing the seat he was seeking in his first attempt may have decreased his willingness to run for office again.

Losing the election may have negatively changed his self-perception about his skills as a candidate.

With the previous example I have illustrated the paradox that candidates who lost an election face. Thinking in the possibility of running for office in the future, on the one hand they have the experience of having run for an election before and this gives them an advantage respect to those candidates who run for the first time. But on the other hand, their confidence on their chances is lower than before they ran and lost. In their first passage from nascent ambition to expressive ambition they had to overcome all the personal, professional and political obstacles to start a political career. Then, in order to express their ambition again in the following election, in addition to all the obstacles for a political career, they have to face their decreased confidence.

A way of showing how losing an election may affect future expressive ambitions is starting from Black's model for political ambition (1972). According to Black, the probability running for an office is the following:

$$U_i(Running\ for\ Office\ o) = P_{io} * B_{io} - C_{io},$$

where the Utility (*U*) of running for an office (*o*) for a given individual (*i*) is equal to the Probability of getting that office (*P*) times the Benefit of holding that office (*B*), minus the cost of getting and holding it (*C*). The theoretical implication of Black's model is that an individual will run for an office if $P_{io} * B_{io} > C_{io}$.

If we include the negative update of losing an election, which affects the self-confidence on getting the seat, and the personal costs, the formulation would be the following:

$$U_{i_{t2}}(Running\ for\ Office\ o) = P^{I}_{io_{t2}} * (B_{io_{t2}} - C_{io_{t2}}),$$

where the utility (*U*) for candidate (*i*) for running for a given office (o), that not necessarily is the same than in the previous election, so let *o={1,2,3,M}*; in a second attempt (*t2*); is given by his perceived probability (P^I) of winning that office in this new attempt; times the benefits (*B*) of that office minus the costs (C) of running and holding it.

The change in a candidate's self-perceived qualifications may affect his perceived probability of winning the seat. Then, the probability of winning an office in the second attempt is defined:

$$P^{I}_{io_{t2}} = P_{io_{t2}} + E_{io\,t1} - N_{io_{t1}},$$

where the new probability P^I is a function of the probability of getting the seat in this new race (*P*) if the prospective candidate would just consider the conditions of this current office (number of seats available, number of candidates, strength of the incumbent, etc.), plus the experience gained in the previous election (*E*), minus the update for losing it (*N*). Then again, candidate *i* will enter in this new election if $P^{I}_{io_{t2}} * B_{io_{t2}} > C_{io_{t2}}$.

Now we have a model for candidate persistence which addresses the experience obtained in the previous election (*E*) by a candidate, and the update in the candidate's perception of the probability of winning the seat, result of losing the previous election (*N*). In the next

paragraphs, I will argue that, there are theoretical arguments to think that the update on the self-perception of the probability of winning the seat, and the change is the costs is unequal for men and for women, resulting in a lower rate of candidate persistence for women.

Electoral contest can be seen as competitions between candidates for seats and votes. According to a large body of research, men and women behave differently in competitive environments, such as electoral contests. For example, Niederle and Vesterlund (2007) have found in a laboratory experiment that, conditional on ability, women are less likely to enter into winner-takes-all competitions than men. They found that the gender gap is also present among the high performers, which leads to women with great prior performances to not achieve the same earnings than their male counterparts because their self-exclusion from competition. Kanthak and Woon (2014) have found that women are less likely than men to become representatives of a group, when the process for choosing representatives implies becoming candidates and competing in elections.

Experimental and field studies have also shown that women and men respond to a setback differently. Buser (2016) has found that after facing a setback in a competition, men react by picking a more challenging target, while women react by lowering their performance in the following competition. Gill and Prowse (2014) have also found that setback decreases future performance for women, in a larger extent than for men, who just reduce their performance when the prize at stake is big enough.

In a recent paper, Buser and Yuan (forthcoming) have shown that women are more likely to give up competing in math competitions in the Netherlands after losing than their male counterparts. In the same paper they used experimental data, but they could not reach a conclusive causal mechanism[4] that produces the different reaction. Instead, they conclude that there must be a direct negative effect on the willingness to compete for women who initially were willing to compete. Ryckman and Peckham (1987) and Deck et al (1978) have shown that women tend to attribute failure to internal factors (such as their skills to succeed), and success to external factors (such as luck), while men tend to do the opposite. Since elections are a competition between candidates to win offices this argument may also apply for politics.

Lawless and Fox (Lawless and Fox 2005; Lawless 2012) have gone a step further asking for the reasons of these differences in behavior. They focus on elections. Despite the fact that they do not look at reactions to setbacks, their findings can be an explanation for these different reactions. Looking at the candidate nomination process in America they found that, under the same level of qualifications, women consider themselves less qualified for running for an office than their male counterpart, because of a process of socialization to which both genders are exposed. The process starts at a very early age and has three manifestations of traditional family role orientations. This first manifestation is present when women are in charge of the largest part of household, child care and others jobs, and it results in less time and resources for a political career. The second manifestation, a masculinized ethos in politics, appears when politics are seen as a men's world, and the

[4] They tested for difference in initial beliefs, belief updating, performance changes, and changes in risk preferences.

absence of women in elective political institution reinforces this ethos, keeping women outside politics. Finally, the manifestations culminate with a gendered psyche. That is, when the socialization process is finally internalized by individuals, women become less confident to enter into competitive environments such as elections compared to males with equal levels of qualifications, and party recruiters are less likely to recruit women than men.

Based on the literature reviewed so far, I argue here that the socialization process which makes women less likely to run for office (Lawless and Fox 2005; Lawless 2012), can be also making women less likely to persist in re-running for office than men. Then, to include these different reactions to a setback by gender to the model of running for office which addresses for the previous experience, we have been constructing in this chapter by interacting the negative reaction by the gender of the candidate, such as:

$$P^{I}_{io_{t2}} = P_{io_{t2}} + E_{io\,t1} - N_{io_{t1}} * F_{io_{t1}},$$

where *F* is a binary indicator of the sex of candidate *i*.

2.3. Identification Strategy: the Brazilian city council elections

In order to test my theory, I use data from Brazilian city council elections from the years 2000 to 2016. Brazilian city council elections present an exceptional case to test my argument for several reasons. First, the open list proportional representation system creates a candidate-centered competition in all the Brazilian legislative elections—this is true in general and in the city council in particular. Second, party leaders and recruiters have a minor role in the candidate nomination process. Therefore, candidatures depend on

a large extent on the political ambition of candidates. Third, the cost of an electoral campaign for the city council in Brazil is relatively low compared to other offices. Fourth, city council elections are the place where most of the political careers start in Brazil, and this also makes them the first place where political careers can get truncated. Fifth, the adoption and the posterior reform of gender quotas for legislative elections resulted in a large number of women running for office but just a small percentage of them gets elected. Therefore, the Brazilian city council elections offer a case with enough number of female candidates running for office, but an unsolved theoretical question for the low percentage of women elected. Finally, I argue that in Brazil there exists a process of traditional socialization that may lead to a gap in political ambitions. In the next section I will discuss each of these characteristics of the Brazilian local elections.

2.3.1 Candidate centered elections

First, Brazil's electoral system revolves around candidate-centered elections; all Brazilian legislative elections hold an open list-proportional representation system. For the city council elections, the district magnitude goes from 9—for cities with less than 15 thousand people—to 55—for cities with more than 8 million people[5]. Despite the fact that voters can choose candidates or parties/coalitions, voters usually cast their votes for candidates.[6] Votes for candidates from the same party/coalition, and the votes casted for a party list go to the same poll. The seats are distributed to parties proportionally with the

[5] Table 1 in the Appendix presents the different district magnitude according to the people living in each city.

[6] Even though voters can vote for parties, it is not as common as voting for candidates. In the 2014 election for national deputy, only 8.4% of the votes went to parties, while the other 91.6% of voters chose a candidate (O Globo, 2017).

percentage this pool of votes each party got. The adjudication of seats among candidates responds to a ranking resulting from the amount of votes each individual candidate got in the election. So, if Party A gets *N* seats in an election for federal deputy, the *N* first candidates with more votes are those getting the seats.

Despite candidates from the same party are adding votes for the same poll, candidates are also competing with each other. If they want to be elected they have to get more votes than the other candidates from their party. This electoral rule promotes the intra-party competition (Carey and Shugart, 1995), and consequently it promotes candidate-centered electoral campaigns (Ames, 1995).

In contrast with closed list systems, in Brazil the candidates, and not the parties, are in charge of running their entire campaigns. Running a campaign implies that candidates are also in charge of fundraising, deciding how to allocate the resources they fundraise, and deciding the content and the strategy of their electoral campaign (Samuels, 2001).

In this context, previous campaign experience is a valuable asset. Previous campaign experience, that experience gained by running in previous elections (even in the case of losing the seat), gives candidates knowledge about how to run a campaign, makes candidates more knowledgeable on how to efficiently allocate campaign resources, and it makes them better known among voters and fundraisers. All this things may improve their probability of getting the seat in comparison with the newcomers. Then, those candidates

who decide to persist in running for office, including those who lost the seat, would have an advantage (Haime, Vallejo & Schwindt-Bayer, 2017; Anagol & Fujiwara, 2016).

2.3.2 Candidate nomination process

The second reason is the candidate nomination process. Each political party's statute has the regulations for how the parties nominate candidates, which has to be consistent with the electoral code (*Law 9,504/1997*). For the four legislative offices in Brazil (Senate, National Chamber of Deputies, State Legislatures, and City Councils), all the parties have a decentralized system of nomination. This means that the candidates' lists are generated at the district-level. In the case of the city council elections, lists are generated at the city level, with no meddling of the national or the state party authorities.[7]

The Brazilian electoral code bans independent candidacies. All candidates must run on a political party list. However, party affiliation requirements are weak, in comparison with other countries. Party switching is a common practice in Brazilian Politics (Schmitt 1999; Desposato 2006) and party labels and party organizations have little value for Brazilian politicians (Samuels, 2008).

In contrast with closed list systems like Argentina or single member districts like the U.S., district party leaders in Brazil do not have control over the nomination process. In the case

[7] The formal requisites for a candidature are: having the Brazilian citizenship, having more than 18 years old, literacy, having a legal address in the district where the candidate wants to run, not being banned by the electoral justice, and being able of the plenty exercise of political rights (this excludes people with sentence without possibility of appeal).

of Argentina, district party leaders hold a great authority in the candidate nomination process. District party leaders are the gatekeepers of the party, letting or not prospective candidates to enter or not in their lists (Jones, Saiegh, Spiller, & Tommasi, 2001). In the U.S. district party leaders have also a relevant role by recruiting prospective candidates for primaries (Maisel and Stone, 1997, 1998; Krebs, 1999).

In Brazil district party leaders have more discrete role. Some scholars have argued that party leaders and recruiters in Brazil do not play any relevant role during elections (Samuels, 2003; Mainwaring 1991). According to these scholars, the open list proportional representation system creates an environment where party leaders do not have a role. The more votes a party gets, the better for the party, regardless these votes come from one or many candidates. Therefore, parties do not have incentives to have gatekeepers of candidatures because each candidature represents, potentially, more votes.

Contrastingly, a second group of scholars have argued that, despite the incentives of open list proportional representation, party leaders have an active role (Braga, 2008; Álvarez, 2008; Braga & Amaral, 2013; Bolognesi, 2013). They argue that if the absence of gatekeeper is real we may observe candidates filling the 100% of the available slots of candidatures by party, but parties usually only fill between 40% and 50% of the available slots. These scholars have argued that party leaders have two main roles in Brazilian elections. First, they prevent extreme levels of intraparty competition that can affect the performance of a party as a whole in the election—minimizing incentives for candidates to perform negative campaigns against co-partisans for example (Cheibub & Sin, 2015). The

second role of party leaders is that they coordinate the selection of candidatures to fill the quota requisites of including female candidates to avoid getting penalized by the electoral justice (Araujo & Borges, 2012).

Another group of scholars has focused on the variation of the party leaders' attributions among parties (Braga, 2008; Amaral 2011). They found that leaders from more programmatic parties (like PT, the Workers Party) have a more active role in recruiting candidates and more authority to ban candidatures than leaders from less programmatic parties (like PMDB, Party of the Brazilian Democratic Movement).

Despite these differences, there is an agreement that individual candidates in Brazil have large autonomy in deciding whether to run or not, and for which party label. This is a common characteristic for all legislative elections, including the elections for city council. And, in the unusual case of a nomination being denied by the party to a candidate, candidates can always opt for switching parties and running anyway. Then, self-selection is the main characteristic for the Brazilian candidate nomination process.

2.3.3 Cost of an electoral campaign

Running for office always implies monetary costs. These costs come mainly from the campaign. Electoral campaigns for city council are significatively cheaper than campaigns for other offices in Brazil**.** Campaign expenditure limits for City Council also vary according to the size of the city. For small cities (less than 50,000 voters, the 92.04% of the cities) the average limit for the 2016 elections was R$ 15,363.68 (4,011.40 dollars).

For medium cities (between 50,000 and 200,000 voters—6.30% of cities) the average limit was R$ 67,489.5 (17,621.28 dollars). For big cities (between 200,000 and 1,000,000 voters, the 1.47% of the cities) the average limit was R$ 203,055.70 (53,017.15 dollars). Finally, for very big cities (more than 1,000,000 of voters, the 0.17% of the cities) the average limit was R$ 880,911.56 (230,003.02 dollars).

The average campaign expenditures for a city council candidate in 2016 was R$ 22,968.28 (5,996.94 dollars). For the same year the average campaign expenditures were R$ 248,596.84 for mayor (64,907.79 dollars), and for the 2018 election, the average campaign expenditures were R$ 1,000,000 for state deputy (261,096.61 dollars), R$ 2,500,000 for federal deputy (652,741.5 dollars), R$ 3,248,148.3 for senator (848,080.5 dollars), R$ 7,725,926 for governor (2,017,213 dollars) and R$ 70,000,000 for president (18,276,762.40 dollars).[8] [9]

As in many other countries, politics is an exclusive arena that a large portion of the population cannot access. However, for the portion of the population who has the conditions to run, the city council elections are cheapest alternative. Therefore, those

[8] Data available at http://www.tse.jus.br/eleicoes/eleicoes-anteriores/eleicoes-2016/prestacao-de-contas/divulgacao-dos-limites-legais-de-campanha and http://www.tse.jus.br/eleicoes/eleicoes-2018/prestacao-de-contas-1/limites-de-gastos-por-cargo-eletivo-das-eleicoes-2018.

[9] In the cases of executive offices, candidates must get 50% of the votes to get elected; otherwise the two candidates with more votes run a second election with a new budget and limit for campaign expenditures. Then, there are two limits for campaign expenditures: one for the first and another for the second round. For these offices I just considered the limit in campaign expenditures for the first round.

people with nascent political ambition may consider start a political career from this office.

2.3.4. The place where political careers start

City Council elections are considered the place where a political career starts (Prinz, 1993; Dye, MacManus and Zooberg, 1969; Krebs, 1999). Particularly in Brazil, City Council elections offer the perfect political opportunity structure to start a political career. According to TSE, 92.45% of candidates who are running for their first time for a Brazilian elective office are doing so in City Council elections.

However, the city council offices seen as the first stepping-stone for political careers. Table 2.3.4.A shows that more than 20% of candidates who ran for office between 2000 and 2006 were candidates for City Council at some point in their careers. This percentage varies according to the office in dispute. The range goes from 8.8% of candidates who ran for president, to 21.3% of candidates who ran for city council. Table 2.3.4.A also shows how many of those candidates won the office when he/she ran for the City Council.

Table 2.3.4.A: Number and percentage of candidates with previous experience running for City Council by office

Running for	No experience as CC candidate	CC experience as candidate (but not elected)	CC experience as candidate (and elected)	Totals
President	62	5	1	68
(%)	91.2%	7.4%	1.5%	100%
Governor	747	78	21	846
(%)	88.3%	9.2%	2.5%	100%
Senator	903	111	32	1,046
(%)	86.3%	10.6%	3.1%	100%
Federal Deputy	18,278	2,977	995	22,250
(%)	82.1%	13.4%	4.5%	100%
Mayor	64,793	3,213	7,370	75,376
(%)	86.0%	4.3%	9.8%	100%
State Deputy	46,451	7,570	2,909	56,930
(%)	81.6%	13.3%	5.1%	100%
City Council	1,344,393	257,654	105,734	1,707,781
(%)	78.7%	15.1%	6.2%	100%
Total	1,475,627	271,608	117,062	1,864,297
(%)	79.2%	14.6%	6.3%	100%

Therefore, looking at the first office where candidates decide to run is consistent with the main argument of this dissertation. This dissertation is a story about candidates who decide to throw their hat into the ring and, after facing the result of the election, decide to continue or not with their political career. If, as agued above, the City Council elections are the place where political careers start; they are also the first place where they can get

truncated. So they are the first place we should look at to understand who those candidates who decide to give up are.

2.3.5. Female presence in ballots but not elected

In contrast with the experience in many other countries, the adoption of gender quotas for legislative election in Brazil did not have successful results. Brazil adopted a gender quota law for al legislative offices in 1997 (*Law 9,504/1997)*. That text mandated that political parties must *reserve* a minimum of 30% of their legislative candidate list for each gender. The same law also established that parties were allowed to present a maximum number of candidates up to 150% of the total of seats at stake in the district, and 200% in the cases where the party was in an electoral coalition with other(s) party(ies). Given this excessive provision, the requirement of reserved seats only indicated that parties could not run a full slate of male candidates. But if they did not fill all the allocated female candidacies, they could run an election with just male candidates, as long as those candidacies did not occupy the seats reserved for women. For example, in a legislative election in a district with ten seats at stake parties can present up to 15 candidates. The requirement of the 30% of the seats reserved for women mandates that no more than 70% of the 15 candidates can be men (Wylie and dos Santos, 2016). Consequently, under the first version of gender quotas it was legal that in a district with ten seats at stake a party presents just 10 male candidates and no women, leaving vacant the other 5 reserved seats.

The initial quota law did not have the effect of increasing the number of female candidates or female representatives in legislative bodies. The reform that made quotas work took

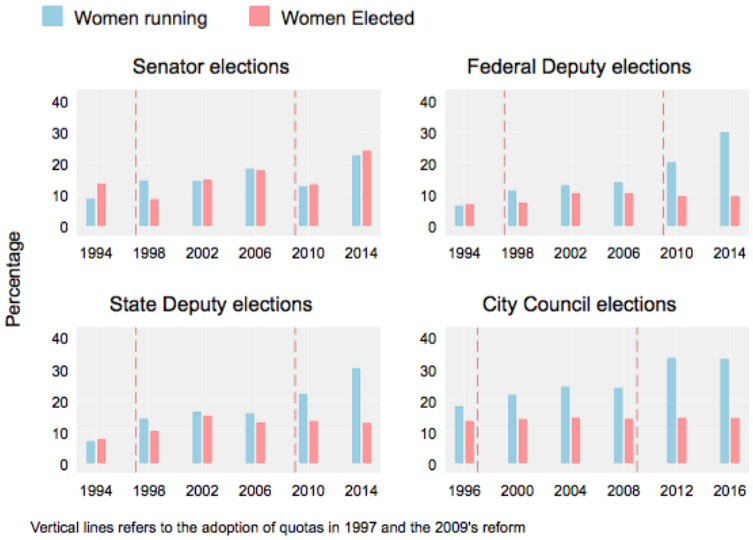
place in 2009, when president Lula da Silva formed a Tripartite Commission, with representatives from the executive and legislative branches, and members of the civic society to discuss and propose changes in order to improve women's representation in legislatures. The law 12,034/2009 was passed on September of 2009 and it included one big modification in the text of the quota law: the word "reserve" (*reserva*) was replace with "fill" (*preencher*). That meant that not occupying the reserved seats for the other gender was not enough anymore. Now, parties *must* have at least 30% of candidate from each gender (Wylie and dos Santos, 2016).

Although the 2009 reform was successful in increasing the percentage female candidates running for office, the percentage of women elected was still very low. Figure 3.5.A shows the percentage of women running and getting elected for each office from 1994 to 2016 Vertical dashed lines indicate the adoption of gender quotas in 1997, and the posterior reform in 2009.[10] For the office of Senator, the reform of quotas changed from 10.5% in 2006 to 12.5% in 2010 the percentage of women running for office, and from 12.5% to 13.2% the percentage of women elected. For the office of Federal Deputy, the immediate elections before and after the reform of gender quotas changed for the women running for that office from 13.2% in 2006 to 19.7% in 2010, and from 8.3% to 7.2% for the women elected, for the same years. Then, for the office of State Deputy the percentage of women running for office in the immediate election before the adoption of quotas changed from 14.7% in 2006 to 21.1% in 2010, while the percentage of women elected in

[10] All legislative elections are held every four years. Elections for Senator, Federal Deputy and State deputy were held in 1994, 1998, 2002, 2006, 2010 and 2014, concurrent with presidential and governmental elections, while elections for city council took place in 1996, 2000, 2004, 2008, 2012 and 2016, concurrent with mayoral elections.

the same two elections went from 11.1% to 12%. Finally, for the City Council office the percentage of women running for office went from 22.7% in 2008 to 33.1% in 2012 while the percentage of women elected went from 12.5% to 13.2%, for the same elections. Overall, the 1997 adoption of quotas had little positive impact on the percentage of women running for office and no impact on the percentage of women elected. The 2009 reform had a larger impact on the percentage of women running for office, which sharply increased, but it hardly changed the percentage of women who got elected.

Figure 2.3.5.A: Impact of gender quotas on women running and elected in Brazil



Source: Own elaboration based on data from *Tribunal Supremo Eleitoral* (TSE).

In sum, Gender quotas in Brazil created an institutional incentive to increase the number of women running, but these institutions were not effective in improving gender representation. Brazil offers a case to study where voters have the chance to make women getting electing, but it is not happening. In contrast with the U.S. where women are not

getting elected because they do not run (Fox & Lawless, 2010; Sapiro, 1982), in Brazil women are not getting elected despite the fact that they are running for office. For this research perspective, the Brazilian city council elections offers a case with enough men and women running for office to analyze their patterns of candidate persistence.

2.3.6. Gender-role socialization and political ambitions in Brazil

My theoretical model lies on the assumption that differences in political ambitions across gender are the result of long-standing patterns of traditional sex role socialization. As defined by Conover and Gray, traditional sex role socialization is the "division of activities into the public extra-familial jobs done by the male and the private intra-familial ones performed by the female" (1983, 2-3). This division produces social stereotypes for each gender, creating a role related to house and children for women, and a role related to jobs and political activities for men. As a result of this process, women perceive themselves as less qualified for activities which are considered a "man's business," than men with equal qualifications—and running for office is one of these cases. Consequently, many qualified women are not running for office because they do not feel they are good enough, and as a result women are poorly represented in elective political offices (Fox and Lawless, 2010).

This argument, which connects the traditional process of socialization, gender differences in political ambition, and a low percentage of women being elected in political offices, has been documented and tested in the United States. For that reason, in order to argue for the presence of a similar process in Brazil, it is necessary to analyze empirical evidence. I

argue that these patterns of traditional socialization and the subsequent gap on ambitions exist in Brazil, at least with the same intensity as in the U.S. There are three manifestations of socialization that explain the gender gap in political ambition described in the American Politics literature: *traditional family role orientations*, *masculinized ethos*, and *gendered psyche*. I proceed by describing them and providing evidence of the presence of these three characteristics in Brazil.

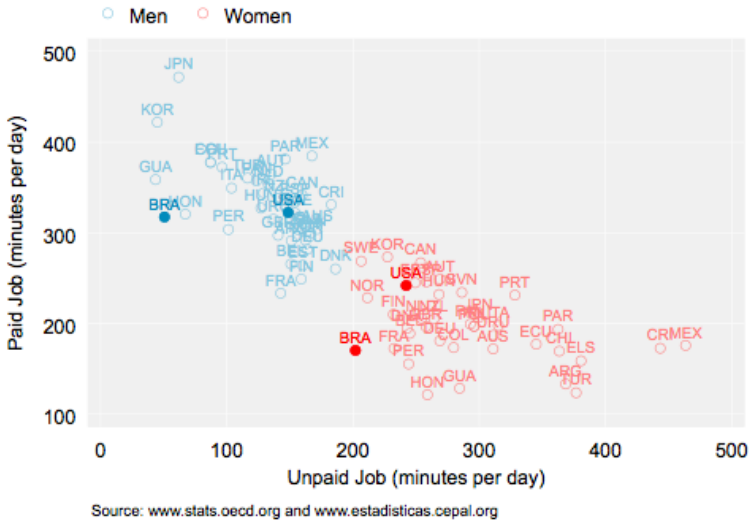
2.3.6.1. Traditional Family Role Orientations

The most obvious manifestations of traditional gender socialization are family roles. Family roles are one of the biggest obstacles women face when trying to pursue a political career, but they also affect women in business (Mardsen, Kalleberg & Cook, 1993, Arráiz, 2018) and academic positions (O'Laughlin & Bischoff, 2005). Even nowadays, in most countries there is a social expectation for women to prioritize household and childcare over their political career (Poortman & Tanja Van Der Lippe, 2009; Silverman, 2015). One way to observe this is by looking at the social distribution of unpaid jobs. For all countries, even the most developed and progressive, women perform larger portions of unpaid jobs than men. This affects women's political ambitions by creating obstacles for them to balance a political career with their household and family duties. For many women, a political career represents a third job together with their family and household obligations. In contrast, their male counterparts spend less time at the house, which gives them an advantage when pursuing a political career (Lawless and Fox, 2010, 10).

Figure 3.6.1.A presents the amount of paid and unpaid job, which includes household and childcare, in the OECD and the CEPAL countries, by gender[11]. Both types of jobs are measured as the total minutes on average people spend per day. As the figure shows there is a gender gap in the amount of time spend on paid and unpaid jobs. For all OECD and CEPAL countries, women are responsible for the majority of unpaid jobs. The mean of the paid job for men is 327.8 minutes a day, with a standard deviation of 47.7 minutes. In the case of women, the mean of the paid job is 196.94 minutes, with a standard deviation of 39.2. The difference of means in paid jobs is 130.86 minutes in favor of men. In contrary, the mean of the unpaid job for men is 131.8 minutes, with a standard difference of 38.9. Then, for women the mean is 289.5 minutes, with standard deviation of 61.1. When calculating the difference we find that women spend 157.7 minutes more than men doing unpaid jobs. For the United States the bullets are highlighted in the Figure 2.3.6.1.A. American men spend 80.5 minutes more working on remunerated job than women per day (322.4 against 241.9 minutes). While for unpaid jobs, women spend 93.5 minutes more than men per day (242.1 against 148.6), showing an uneven distribution of paid and unpaid jobs.

[11] Data refer to the latest available year. For OECD; Australia: 2006; Austria: 2008-09; Belgium: 2005; Canada: 2010; China: 2008; Denmark: 2001; Estonia: 2009-10; Finland: 2009-10; France: 2009; Germany: 2001-02; Hungary: 1999-2000; India: 1999; Italy: 2008-09; Ireland: 2005; Japan: 2011; Korea: 2009; the Netherlands: 2005-06; New Zealand: 2009-10; Norway: 2010; Poland: 2003-04; Portugal: 1999; Slovenia: 2000-01; South Africa: 2010; Spain: 2009-10; Sweden: 2010; Turkey: 2006; the United Kingdom: 2005; and the United States: 2014. For CEPAL; Argentina: 2013; Brazil: 2012; Chile: 2015; Colombia: 2012; Costa Rica: 2011; Ecuador: 2012; El Salvador: 2010; Guatemala: 2014; Honduras: 2009; Mexico: 2014; Panama: 2016; Peru: 2010; and Uruguay: 2013.

Figure 2.3.6.1.A: Paid and unpaid job by gender in OECD and CEPAL countries



Latin America was not the exception to this gender division of jobs. In Latin America gender traditional roles are well defined. In her seminal book about the role of women in society in Latin America, Elsa Chaney documented with survey data that for Latin American women "home and family come first, even for professionals who have worked all their lives" (1979, p.34). Until recent years, but still present in many areas of Latin America, a woman's place was in the home. Most Latin American women who work do so just out of economic necessity. For the case of Brazil, Blachman has argued that Brazilians generally agreed that men and women may have different type of jobs (1973, cited from Chaney, 1979, p.34). Bullets for Brazil are also highlighted in Figure 3.6.1.A. For this country, women spend 151.2 more minutes than men, per day, doing unpaid work (201.9 against 50.6 minutes); and men outpace women in paid work by doing 147 minutes every day (317.4 against 170 minutes). As in the U.S., there is an uneven distribution of jobs.

The Euclidean distance, i.e. the straight-line distance, between two points in a multi dimensional space, can tell us in which case the observations are more distant (Ozimek & Miles, 2011). In other words, we are going to calculate the distance between American males and American women and the distance between Brazilian men and Brazilian women, in a bi-dimensional space of paid and unpaid jobs. The larger the distance, the more unequal a country is in terms of time spent on paid and unpaid jobs between men and women.

The Euclidean distance between American men and women is 123.3 minutes while, for Brazilian the distance between men and women is 210.9 minutes. Therefore, the division of paid and unpaid jobs between men and women is more unequal in Brazil than in the United States. Consequently, we have evidence, which supports the explanation that traditional family role orientations, present in the United States, are also present, and maybe they are stronger, in Brazil.

To sum up, traditional family orientations are the first manifestation of the process of socialization that ends up creating a gender gap in political ambitions between men and women. One way to see this manifestation is looking at the division of jobs inside a society. We have shown that the pattern that exists in America (Lawless and Fox 2005), is also present in Brazil.

2.3.6.2. Masculinized Ethos

A second manifestation of the process of socialization is a masculinized ethos. The masculinized ethos refers to the degree in which political institutions are dominantly associated with males. When institutions are historically performed by men so often that the institution becomes associated with them, we can talk about a masculinized ethos. Therefore, this masculinized ethos makes women less likely to run for office and consequently fewer women get the seats—reinforcing the ethos. For example, in America, the presidency is an institution with a masculinized ethos. In 242 years of democracy a woman never occupied the presidency in the U.S. and in 2016 Hillary Clinton was the first woman to win the nomination of one of the major political parties for presidency.

The scenario for female politicians in Latin America is a just bit better. For the case of Brazil, Dilma Rousseff was elected president in 2010 with over 56 of the votes in the run-off, re-elected in 2014 with over 51%. Other cases of women reaching presidencies in Latin America are Lidia Gueiler president of Bolivia between 1979 and 1980; Violeta Chamorro, president of Nicaragua between 1990 and 1997; Cristina Fernandez in Argentina from 2007 to 2015; Rosalia Arteaga in Ecuador in 1997; Mireyra Moscoso, elected president of Panamá in 1999, and serving till 2004; Michelle Bachellet, president of Chile from 2006 to 2010 and from 2014 to march of 2018; and Laura Chinchilla, president of Costa Rica from 2010 to 2014.

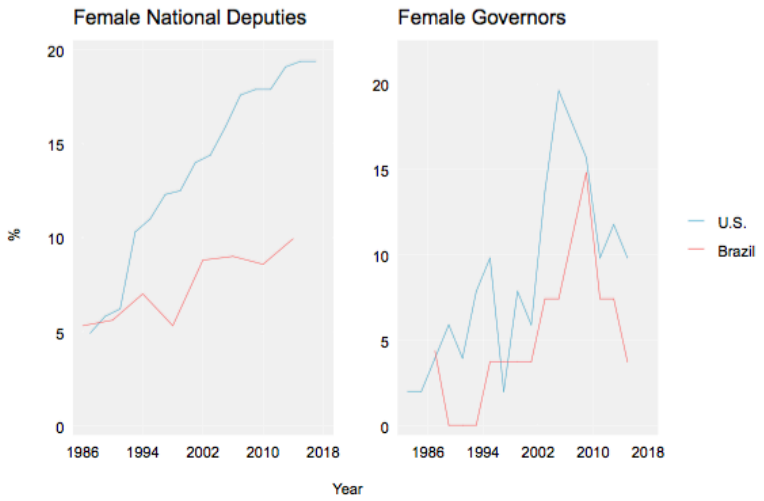
However, despite the eight cases of women who reached Latin American presidencies shown in the previous paragraph, the presidential office, as well as most offices in Latin

America, is highly masculinized. For the U.S. and for Brazil two of the most important offices after the presidency are the governorships and the national deputy.[12] Figure 3.6.2.A shows the percentage of national deputies and governorships hold by women from 1986 to 2015 for the U.S. and Brazil.[13] During this period, the United States always had at least one female governor. For all the years of the period the U.S. had at least one woman occupying the governorship, and its average is 8.76%. Then, for Brazil the first women who occupied a governorship was Iolanda Fleming from May of 1986 to March of 1987, after being elected vice-governor of the State of Acre and governor Nabor Junior leaving the office to run for mayor in 1986. Since 1995 to 2015, at least one Brazilian woman worked as Governor. The mean in the percentage of women in governorship for the whole period in Brazil is 5.22%.

[12] In the cases of Brazil, governorship is clearly the second most prestigious office after the presidency. In the case of the United States, the Senator is in general considered as the second most prestigious office, being the Governor the third one. National deputies rank third in both countries, after the Senator and the Governor, respectively.

[13] Governorships are elected in both countries using majoritarian electoral rules (simple majority for U.S. and absolute majority for Brazil). Federal Deputies are elected under single member district in U.S., and open list proportional representation in Brazil.

Figure 2.3.6.2.A: Female National Deputies and Governors in the U.S. and Brazil (%): 1986-2015



Source: Own elaboration based on data from Inter-Parliamentary Union, Center for American Women and Politics, and Wikipedia

Regarding the office of National Deputy, the U.S. offers a consistent and increasing pattern of women in the Lower Chamber. The minimum value was 4.9% for 1987, and the maximum was 19.4 for 2015 and 2017. The mean value during the entire period was 13.6% for the U.S. In the case of Brazil, the pattern was more irregular. The minimum value was 5.3% for 1998 and the maximum was 9.9% for 2014, while the mean value for the entire period was 7.4%. With the exception of 1986, the U.S. had a larger percentage of women in the lower chamber than Brazil for the entire period. [14]

[14] Percentages of figures 2.3.6.2.A 2.3.5.A cab be slightly different because for figure 3.5.A data came from TSE and it reflects the percentage of women elected; while for Figure 3.6.2.A data came from IPU and shows the percentage of women who occupied the seat. Differences between the percentage of women elected and women who occupied the seat at the Brazilian lower house may reflect party negotiations, candidates who decided not to occupy the seat because they receive a better offer (like a portfolio), or just abdications.

In conclusion, the second manifestation of a socialization process is when the ethos of a political institution is highly masculinized, i.e. when political institutions are seen as part of a man's world. In this section we compared two institutions in two countries: the lower chamber and the governorships in Brazil and in the U.S. Despite the fact that the U.S. is a country with a poor female representation in these two institutions, it has done better than Brazil. Therefore, we have some empirical evidence to argue that the ethos of political institutions in Brazil is masculinized.

2.3.6.3 Gendered Psyche

Finally, the third manifestation of the traditional gender socialization process is a gendered psyche. Once the family roles are differentiated by gender and the political institutions are clearly dominated by men, traditional socialization culminates in the emergence of a gendered psyche that makes women accept these terms of socialization. When women try to "play" in a field that it is not the "appropriate" according to their socialization, they feel outside their comfort zone. Consequently, women tend to think that they are not good enough to compete in politics, in comparison with males with same qualifications.

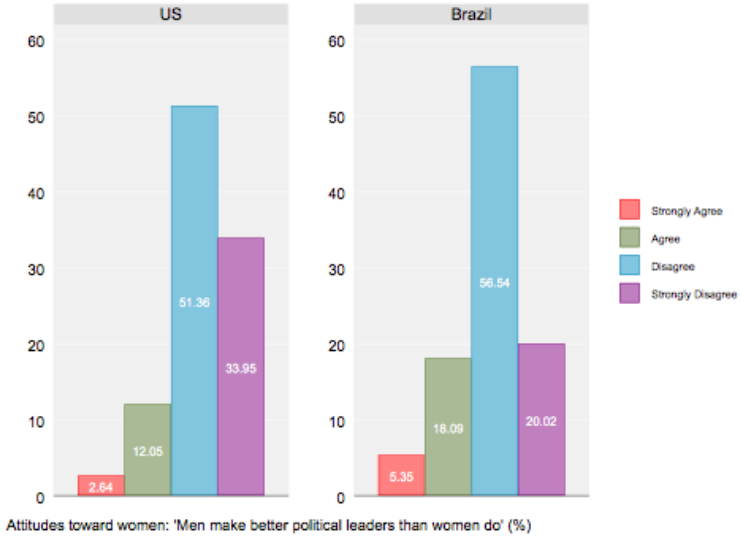
Some studies have shown how this traditional socialization process affects the psychological development with effects on the desire of achievement, risk aversion, and self-confidence. In a seminal paper on gender differences, Eccles (1987) argues that professional achievement-related decisions are a product of the individuals' perceptions about the expected success. Controlling for abilities, Moebius et al (2011) have shown that women don't consider themselves confident enough to enter into competitive

environments when compared to men. Therefore, fewer women are deciding to run (or to re-run) for office because they think politics is a hostile territory for women, and they do not feel confident enough to do it. Eckel and Grossman (2008) review most of the studies about gender differences in risk aversion and find consistent evidence for women to be more risk adverse then men in both, field and laboratory studies.

Therefore, if women have a lower desire for professional achievement, because they are more adverse to risk and if they feel less confident than men, we may observe fewer women playing in arenas that require taking risk. In other words, we will see fewer women running for office and getting the seats because they do not feel that they are qualified enough for the office. Figure 3.6.3.A shows the results of an attitudinal question toward women form World Value Survey. Surveyed participants were asked "On the whole, men make better political leaders than women do", and they have to answer in a scale of four options that goes from strongly agree to strongly disagree. The results in Figure 3.6.3.A correspond just to American and Brazilian women (men where excluded from the data). In the U.S., 12.05% of the women's respondents agreed with the statement, while 2.64% strongly agreed with it. In Brazil 18.09% of the respondents agreed, while 5.35% of the female respondents strongly agreed with the statement. The sum of women that agree and strongly agree with the statement "men make better political leaders than women do" is lower in the United States (14.59%) than in Brazil (23.44%). Then, consequently the sum of the percentages of women that disagree and strongly disagree is bigger in the U.S. (85.31%) than Brazil (76.56%). Therefore, we can conclude that we

have some evidence to think that there is a gendered psyche in Brazil which may affect women's political ambition.

Figure 2.3.6.3.A: Attitudes toward women:
"Men make better political leaders than women do" (%)



Through the previous paragraphs I presented the last manifestation of the traditional sex role socialization: the gendered psyche. This last manifestation was defined as the acceptance of women of the process of socialization that excludes women from politics, relegating them to housework and child growth. I also have shown evidence from the U.S. and Brazil about women's attitudes toward women in politics. Using data from World Values Survey I showed that women in Brazil have a more negative attitude toward women's participation in politics than women in the United States.

2.3.6.4 Summary

To conclude this discussion, we can say that the evidence supports the presence of a pattern of traditional sex role socialization in Brazil with stronger magnitude than in the U.S. In the American Politics literature, this socialization process is considered the main reason of a gender gap in political ambitions (Fox and Lawless, 2010). We compared the three manifestations of it, traditional family role orientations, masculinized ethos, and gendered psyche, and we find that they exist in Brazil with more intensity than in the U.S. This evidence allows us to think in a gender gap in political ambition for Brazil.

Chapter 3: The effect of losing an election on political ambition

How does losing an election affect political ambition? Do men and women react to an electoral setback in the same way? In this chapter I test the gender differences on the effect of losing an election on political ambition. I use candidate persistence, defined as the probability of running for office in following elections, as the measure of political ambition. Using data from city council elections in Brazil from 2000 to 2016 I test to see whether electoral setbacks affect political ambition differently for men and women.

The analysis is divided in two parts. First, I run a regression discontinuity design to test whether a change in political ambition is causally attributable to losing the election. RDD exploits the fact that candidates cannot fully control the number of votes they get. By looking at candidates who barely won/lost, the treatment, losing an election, can be considered as randomly assigned. To account for gender differences I interact losing an election with gender, and I also calculate the difference in the effect of losing on political ambition between genders. Second, I run a multivariate ordinal logistic analysis where I predict the probability of running for the same or higher offices, conditional on the result of the election and gender. In both analyses I find that, despite the fact that losing an election has a negative effect on candidate persistence for both, men and women, the

effect is stronger for women. These results suggest that women are less likely than men to persist running for office after experiencing an electoral setback.

This chapter proceeds as follows. First, I present the hypothesis for this chapter and the data of Brazilian municipal elections used for both analyses. Then, I describe the research design for the regression discontinuity and the results of the analysis. For the ordinal logistic model, I proceed by describing the variables and then presenting the results. Finally, I summarize the conclusion of both analyses.

3.1 The effect of losing

In the previous chapter I provide the theoretical arguments to expect a gender gap on the effect of losing an election on political ambition. I argued that women might be more sensitive to an electoral setback because the gender differences on their perception about their skills as candidates. Women have a lower self-perception about their skills as candidates when compared to males with same qualifications. I also argued that losing an election might reduce political ambition. Joining these two arguments, I claimed that the psychological effect of losing on those individuals with lower consideration about their skills as candidates—women—would be stronger than the effect on individuals with higher consideration—men—(Lawless and Fox 2005; Lawless 2012). Consequently, my hypothesis 1 is:

H1: After an electoral setback, women are less likely than men to persist running for office

3.2 The data

For this chapter I use data on Brazilian City Council elections from 2000 to 2016 from *Tribunal Supremo Eleitoral*. City council elections in Brazil are held every four years, concurrently with the mayoral elections. Table 3.2.A presents the total of observations by year and the percentage of candidates elected by gender. In total data have 1,080,754 observations.

The 2012 election presents more candidates than the previous elections for two institutional changes in the elections. The first institutional change is the 2009 reform of gender quotas. After the reform, parties must include women in their ballots but they do not necessarily have to replace men for women. Parties can nominate up to 1.5 times as many candidates relative to the seat at stake. Therefore, those parties that did not fill the maximum number of nominations can include women without replacing the males. The second reform is the increase in the number of municipalities from 5,356 to 5,570, which naturally increased the number of candidates running.[15]

[15] http://www.brasil.gov.br/economia-e-emprego/2013/06/cresce-numero-de-municipios-no-brasil-em-2013 and http://g1.globo.com/brasil/noticia/2010/12/em-67-anos-brasil-criou-3990-municipios-aponta-atlas-do-ibge.html.

Table 3.2.A: Candidates by year, gender and result of election[16]

Election	Women		Men		
Year	Lost	Won	Lost	Won	Total
2000	49,796	4,574	180,390	34,749	269,509
	18.48%	1.70%	66.93%	12.89%	
2004	50,481	4,265	154,188	30,026	238,960
	21.13%	1.78%	64.52%	12.57%	
2008	49,982	4,484	153,726	31,389	239,581
	20.86%	1.87%	64.16%	13.10%	
2012	104,694	5,277	187,368	35,365	332,704
	31.47%	1.59%	56.32%	10.63%	
Total	254,954	18,600	675,675	131,529	1,080,754
	23.59%	1.72%	62.52%	12.17%	

For all years, 74.69% of the candidates were males, and just 25.31% were females. The trend changes after the reform of gender quotas in 2009 for the 2012 election, where women held 33.06% of the candidatures. On average for all the election years, 86.11% of the candidates lost the seat, 72.6% of them were males, and just 27.4% were females.

3.3 Analysis I: Regression discontinuity design

For the first part of the analysis I examine the effect of losing an election on candidate persistence by gender using a regression discontinuity design, which exploits the fact that candidates cannot fully control how many votes they receive in an election. Though losing

[16] Despite my data goes from 2000 to 2016, the 2016 election was excluded from the analysis because of the way I am coding the dependent variable: whether running or not in the following election and for which office. I used the 2016 election to code candidate persistence for the 2012 candidates, but then 2016 was dropped from the analysis because data of the two following elections (2018 and 2020) do not exist at the moment of running the analysis.

an election is conditioned on institutional and political factors, the precise total number of votes is subject to a "nontrivial random component". In most of electoral scenarios, whether a candidate barely wins or barely loses a seat can be viewed as if it were a random event, which allows the estimation of a causal effect of the electoral result.

The dependent variable is candidate persistence[17], coded 1 for those candidates who re-run for any office in the following election, and 0 for those who do not. For the analysis, I adopt the RD design to the open list proportional representation system used in Brazil for the Chamber of City Council elections from 2000 to 2016.[18] Though voters in Brazil can choose to vote for candidates or for the parties, most of the time they vote for candidates (Samuels, 1999). For example, in the 2010 election for federal deputy, 90.8% of the votes were casted for candidates (O' Globo, 2017), and proportions are similar for other legislative offices. Votes for candidates and for parties from the same electoral coalition and are added to the same coalition's total. The seats are distributed to the electoral coalitions proportionally with the percentage of votes obtained by the coalition's total. The adjudication of seats among candidates responds to a ranking resulting from the amount of votes each individual candidate got in the election. So, if Coalition A gets *N* seats in an election for federal deputy, the *N* first candidates from Coalition A with the most votes are those getting the seats. Thus, since I am interested in the effect of a personal electoral victory/defeat on a candidate's persistence, I will focus on the inter-coalition seat allocation, which determines if a candidate win or lose the seat.

[17] A codebook with the description of all variables can be found in the Appendix.
[18] I follow the adoption of RDD for open list system done by Boas, Richardson and Hidalgo (2014).

Formally, a coalition j wins s_j seats. Let i be the intra-coialition ranks for each candidate, determined by v_{ij}, the total number of votes a candidate from coalition j gets. The candidates with $i \leq s_j$ win the office, while those with $i > s_j$ lose it. For each electoral coalition, the candidate with $i = s_j$ is the "last winner", whose total votes are $v_i = s_{ji}$. Then, the candidate with s_{j+1} is the "first loser", whose vote total is denoted as $v_i = s + 1$. Let M_{ij} be candidate i's margin of votes of victory or of defeat, and define it as:

$$M_{ij} = \begin{cases} v_i = v_{ij} - s_{j+1} & if\ i \leq s_j \\ v_i = v_{ij} - s_j & if\ i > s_j \end{cases}$$

The margin of votes for a candidate who won a seat will be her vote total minus the vote total of the first loser, which will yield a positive value. The margin of votes for a candidate who lost the seat will be her vote total minus the vote total of the last winner, giving, by definition, a negative value. Thus, the outcome of each election is given by the margin of votes: $L_{ij} = 1$ if $M_{ij} < 0$, and $L_{ij} = 0$ if $M_{ij} > 0$, where L is a binary variable coded 1 for those candidates who lost the election, and 0 for those who won.

The main interest in the analysis is not the discontinuity itself—that is, the effect of losing an election on the likelihood of running again for a seat during the period under study. Instead, I focus on the gender difference in the discontinuity—that is, the difference between men and women in the effect of losing an election on the likelihood to running for office. In other words, the null hypothesis of the analysis would not be the absence of a

negative effect of losing on candidate persistence, but the absence of a gender difference in the effect of losing on candidate persistence. Formally, I estimate the following equation:

$$Y_{ij} = \alpha + \delta_1 L_{ij} + \delta_2 F_{ij} + \delta_3 L_{ji} \cdot F_{ij} + f(s_{ij}) + f(s_{ij}) \cdot L_{ij} + f(s_{ij}) \cdot F_{ij} + f(s_{ij}) \cdot L_{ij} \cdot F_{ij} + \varepsilon_{ij}$$

where Y is a binary indicator of candidate persistence, i.e. re-running in the two following elections $t + 1$; L is a binary indicator for losing the seat in election t; F is a binary indicator for being female; and $f(s)$ is a polynomial function of the distance between the percentage of votes gained by a candidate ranked i to the first loser/last winner of coalition j.[19]

For the RDD analysis, candidate persistence was coded 1 in t for those candidates who ran for any office in t+1, where t+1 could be any of the two posterior elections to t, and 0 otherwise. I used the two posterior elections because elections are held in Brazil every two years. All national and state elections are held every four years (2002, 2006, 2010 and

[19] It could be argued that the difference in political ambition between losers and winners is not the product of a negative effect of losing but of a positive effect of winning. In this dissertation I would argue that the change in ambition is product of the effect of losing because the analysis focused just in candidates. Candidates are a self-selected group of people who had enough political ambition to run for office in the first place. Ceteris paribus, the result of the election may affect that initial political ambition positively if they won and negatively if they lost. A positive update on their political ambition would make candidates, who were ambitious enough to run for office, even more politically ambitious. In contrary, a negative update for losing the election would move down the initial level of political ambition, sometimes below the minimum threshold necessary to run for office. A binary outcome, such as candidate persistence, is able capture the negative changes in political ambition, which moves a candidates' political ambition below the minimum thresholds to run for office. Despite it may be an effect of winning, it's not possible to capture it with a binary outcome.

2014 in my dataset). Municipal elections are also held every four years but non-concurrently with the national and state election (2000, 2004, 2008 2012 and 2016 in my dataset). Consequently, looking at the two posterior elections from t covers all the possible offices where a candidate could run.

The data I for this analysis is not perfectly balanced for two reasons. The first reason is the nature of open list proportional representation elections. As described in the previous chapter, party leaders do not have a large role in the nomination as gatekeepers. Even in the case where party leaders could ban an aspiring candidate to run for their parties, aspiring candidates can get the nomination and run for a different party. Moreover, parties can nominate up to 50% more candidates than seats at stake in each district. For example, if there are 10 seats at stake, each party can present up to 15 candidates. Consequently, there are going to be more candidates running and losing (the treatment group) than running and winning (the control group) in my dataset. Despite the skewness of the data it is not possible to argue that the observation deliberately chose to be in the control (winners) or the treatment group (losers) group (McCrary, 2008; Cattaneo, Jansson & Ma, 2017). The theoretical implication of a manipulation around the cutoff would be that each candidate is deliberately deciding to win or to lose the elections. That would not be the case of elections, where all candidates look forward to being elected. Then, despite the fact that results of data on the conventional tests for manipulation show that manipulation cannot be discarded, the skewness does respond to the nature of open list elections.

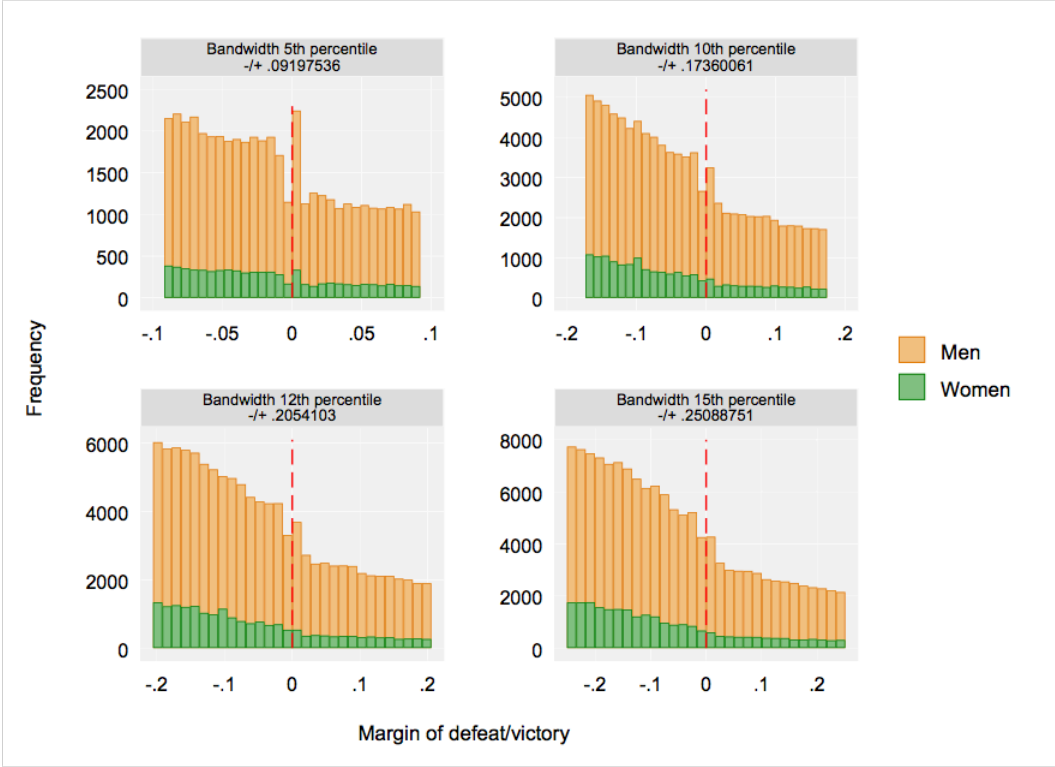
The second problem with the data is related with the gap on gender representation in an open list system. Regardless of the introduction of gender quotas, open list proportional representation has shown to not be a friendly electoral system for female candidates (Jones & Navia, 1999; Schmidt, 2003). There are more males than females between competitive candidates. Consequently, the data show more men than women at both sides of the discontinuity. This issue is more visible in the subgroup of women who were elected.

Skewness and the smaller number of women than men in the data could also result in larger confidence intervals, particularly for the estimations that include women winning the seat. Figure 3.3.A displays a histogram of the running variable around the cutoff for the four samples. Histograms show the unbalances in the data mentioned above. A way to solve this problem could be enlarging the margins of the analysis. However, by enlarging the margins the design could fail for including observations that can be considered as not randomly treated. For that reason I report the results in four samples of the dataset which refers to four distances from the cutoff. First, .09%, which represents the 5th percentile; second, .17%, which represents the 10th percentile; then, .2%, which is the 12th percentile; and finally, .25%, which is equal to the 15th percentile.[20]

[20] Since the reform of 2009 several party leaders have filled the requirements of the quota for women in their party lists by including non-competitive women in their ballots. These candidates receive the name of *mulheres laranjas* or *candidatas laranjas*, meaning fake women or fake female candidates, respectively. *Mulheres laranjas* receive from zero to a few of votes, finishing far away from winning a seat.

Despite there is no clear evidence about how do party leaders recruit these candidates, the presence of this type of candidates could affect systematically my results. Some newspaper articles suggested that party recruiters use always the same list of fake female candidates by the elections. Other newspaper articles suggest that party recruiters change

Figure 3.3.A Histogram of running variable (margin of victory/defeat)



3.3.1 Results

Figures 3.3.1.A and 3.3.1.B present regression discontinuity graphs for men and women using linear and polynomial approaches. Figure 3.3.1.A uses the first 5th percentile of the observations closer to the cutoff (0.09% around the bandwidth), while Figure 3.3.1.B uses the first 15th percentile of the observations (0.17% around the bandwidth).[21] Colored areas represent 95% confidence intervals, while markers show where observations are

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the list of fake female candidates to complete their ballots from one election to the other. In both cases, the estimation of my models could be affected by this behavior. If the *fake females* were always the same, I would have a fakely positive estimation for women who lost elections on candidate persistence. Instead, if party leaders were rotating the female candidates the use to fill the quota, my estimation would be fakely negative. Since for this study the design is a regression discontinuity at the margins of the cutoff, which divides winners and loser, this type of candidatures may not bias the estimations.

[21] To avoid overfitting, I use a linear approach for small bandwidths.

concentrated. Both graphs show a discontinuity between losing and winning a seat on candidate persistence, regardless the gender of candidates. However, when we compare the gender among losers/winners, the gender gap between those who lost is larger than the gap between those candidates who got elected.

Figures 3.3.1.C and 3.3.1.D shows the OLS estimates of the discontinuity corresponding to Figures 3.3.1.A and 3.3.1.B respectively. Figure 3.3.1.C uses a linear approach and the maximum value in the bandwidth is 0.09%, while Figure 3.3.1.D uses a quadratic approach and the maximum value in the bandwidth is 0.17%. Spikes show 95% confidence intervals. Each figure presents results for men and women, and gender difference are presented separately. For both figures, the men and women estimations show the difference in candidate persistence between a man/woman who got elected and a candidate who didn't win the seat at a same value in bandwidth. Similar to the Figures 3.3.1.A and 3.3.1.B, losing an election has a negative effect on both, men and women.[22] The Gender Difference estimation (difference in difference) shows the differences between the estimation of men and women at different values of bandwidth. For the linear estimation, Figure 3.3.1.C, the difference shows statistical significance from the bandwidth value .055%. Then, for the quadratic model, Figure 3.3.1.D the statistical significant difference starts at the bandwidth value 0.096%. The lack of statistical significance at smaller values could be due to the small number of women at small intervals around the cutoff.

[22] In the case of women, although he effect is always negative, for small values of bandwidth, confidence intervals are overlapped with 0, due the small number of observations.

Table 3.3.1.A presents the results for the regression discontinuity and the difference in difference analysis. Models 1 to 4 show the results of interactive models at different bandwidths. Models 5 to 8 show the results at different bandwidths controlling for a linear polynomial. Finally, models 9 to 12 present the results controlling for a quadratic polynomial at the different bandwidths. With the exception of Model 5 for the effect of losing, the other eleven models show statistical significance in the expected direction for the three variables—Female (women=1), Losing (lost the seat in t=1), and the interaction—.

Two conclusions can be made based on the results. First, there is a negative causal effect attributable to losing an election on candidate persistence. For both genders, losing an election substantially diminishes their probability to run in the following elections. Second, this causal effect of losing is larger for women than for men. That means that the negative effect of losing an election on my measure of political ambition, candidate persistence, is significantly larger for women.

In conclusion, the regression discontinuity design shows supportive evidence for hypothesis 1: there are gender differences in the effect of losing an election on candidate persistence. Both, the linear and the quadratic approaches presented similar results. Results were also consistent at different bandwidths. For the next section I address the same question using an ordinal logistic model which allows me to control for potential covariates.

Figure 3.3.1.A: Regression discontinuity. First order polynomial, 5th percentile bandwidth

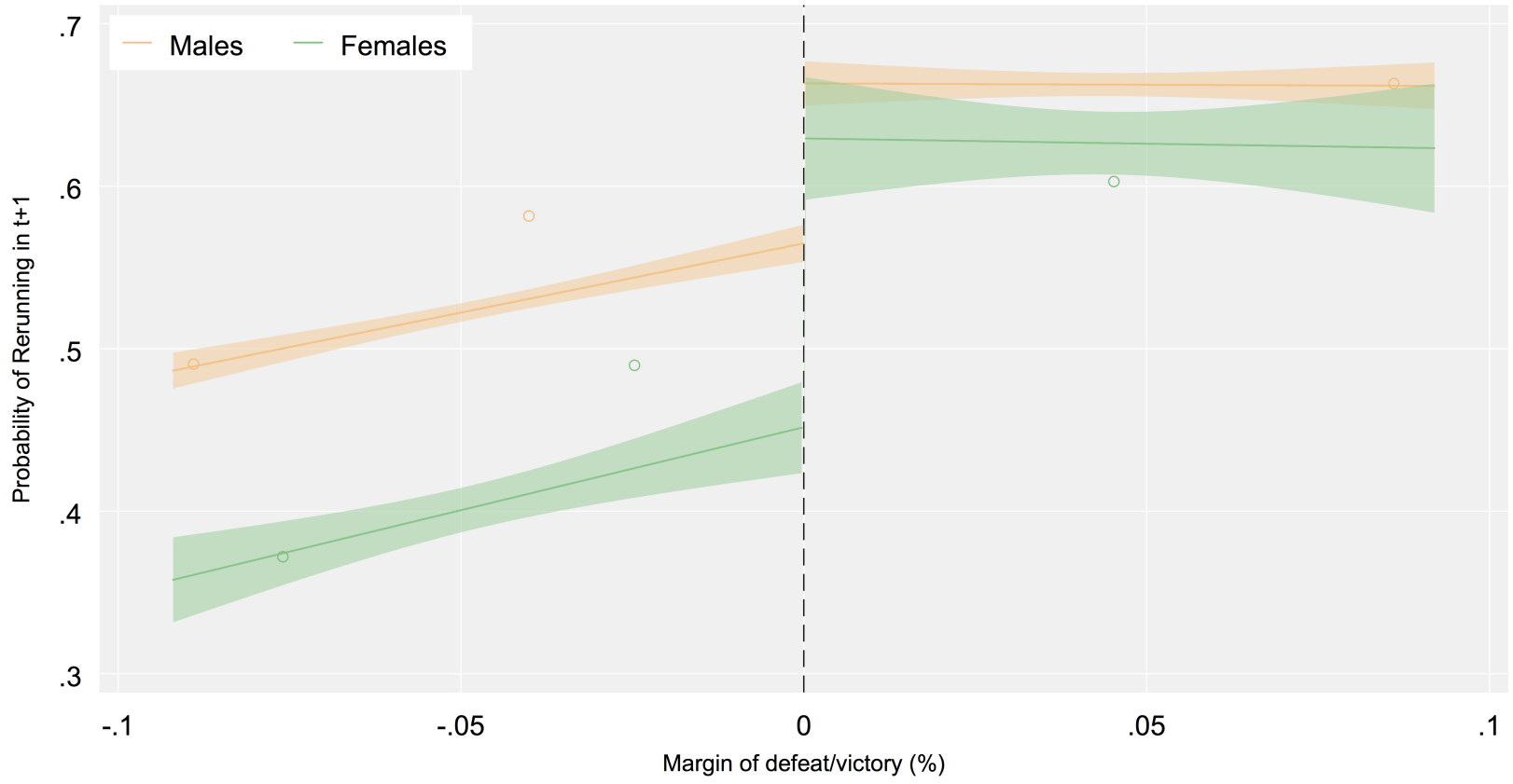


Figure 3.3.1.B: Regression discontinuity. Second order polynomial, 15th percentile bandwidth

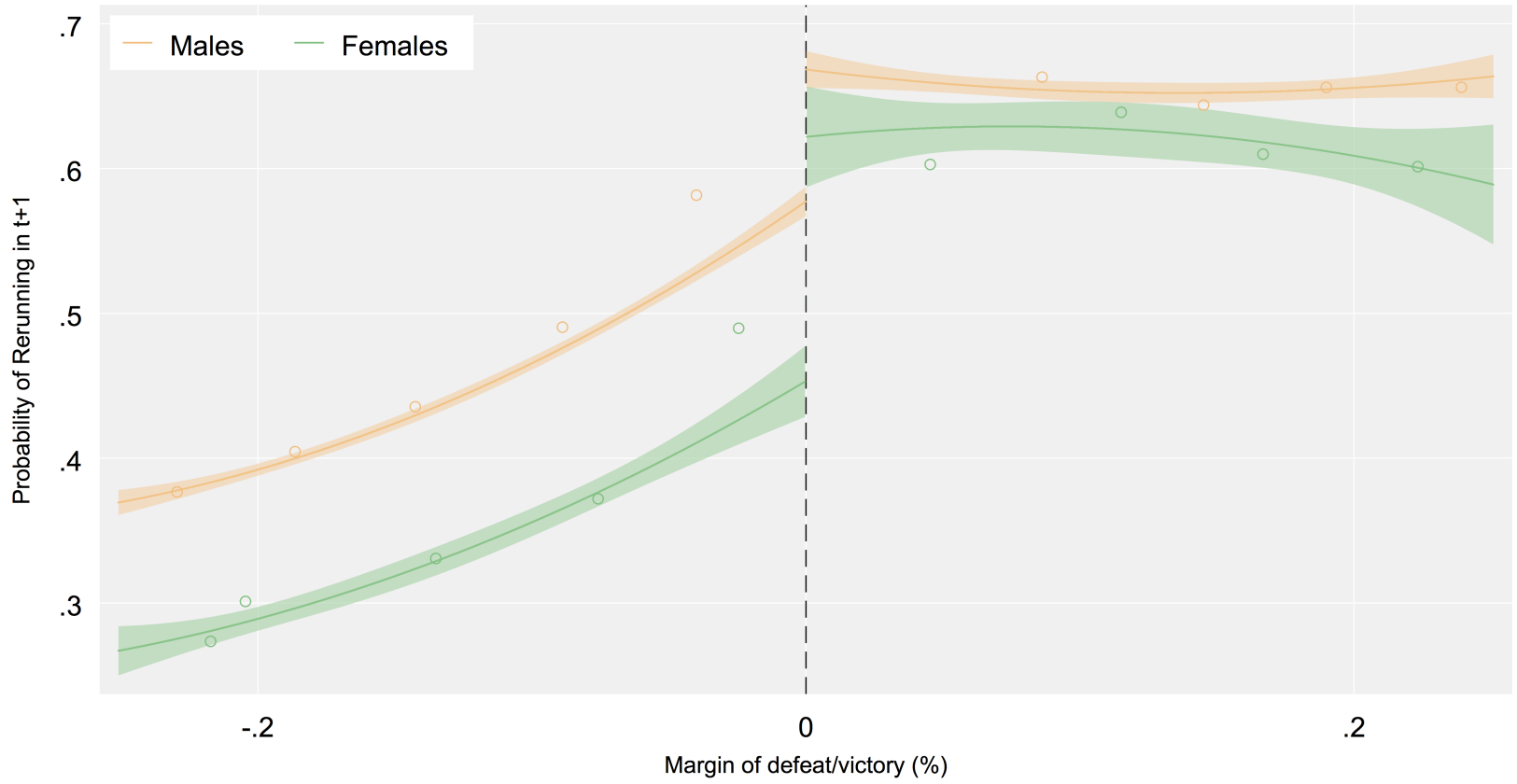


Figure 3.3.1.C: Discontinuity estimates for varying bandwidths (linear)

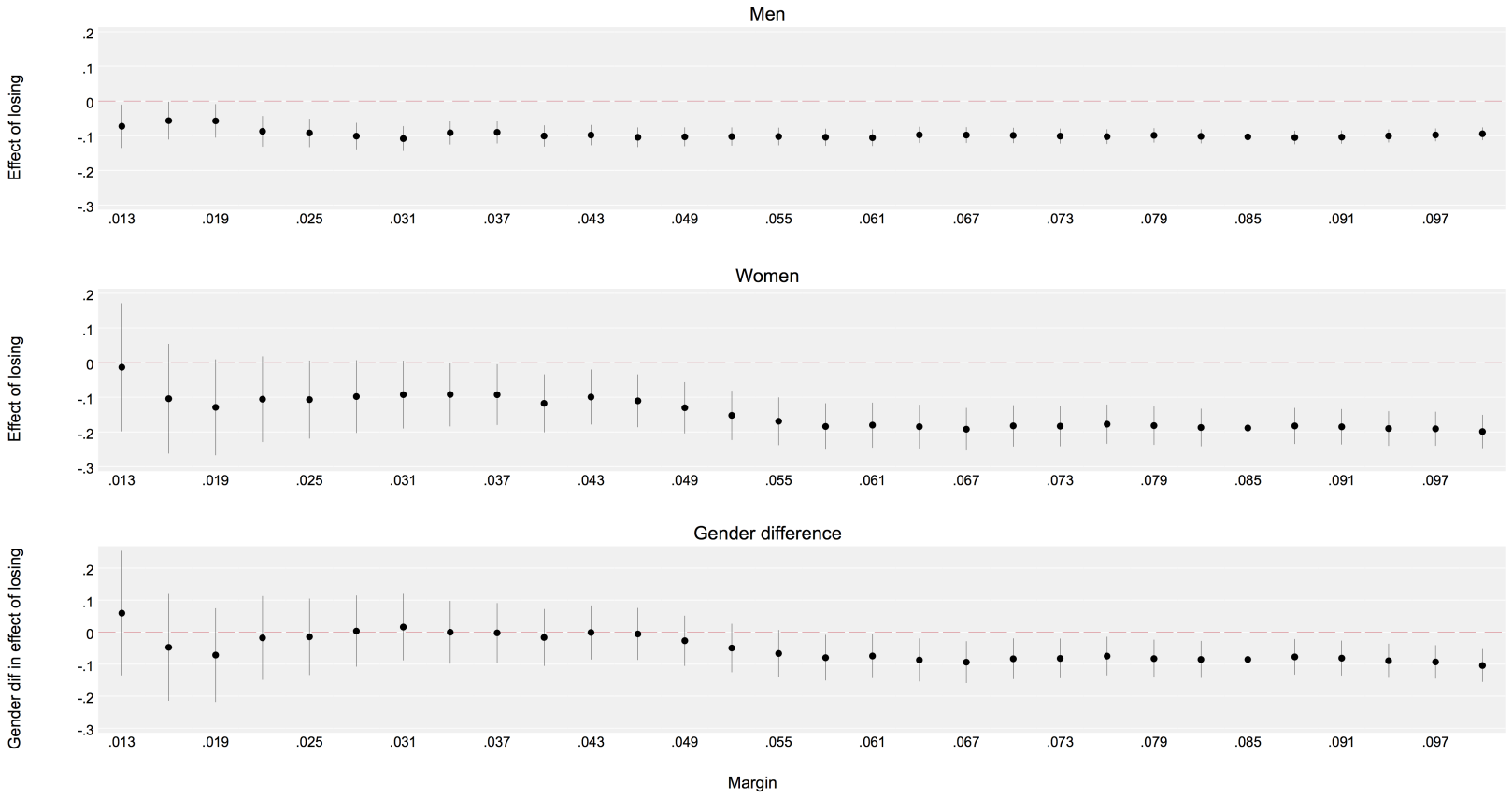


Figure 3.3.1.D: Discontinuity estimates for varying bandwidths (quadratic)

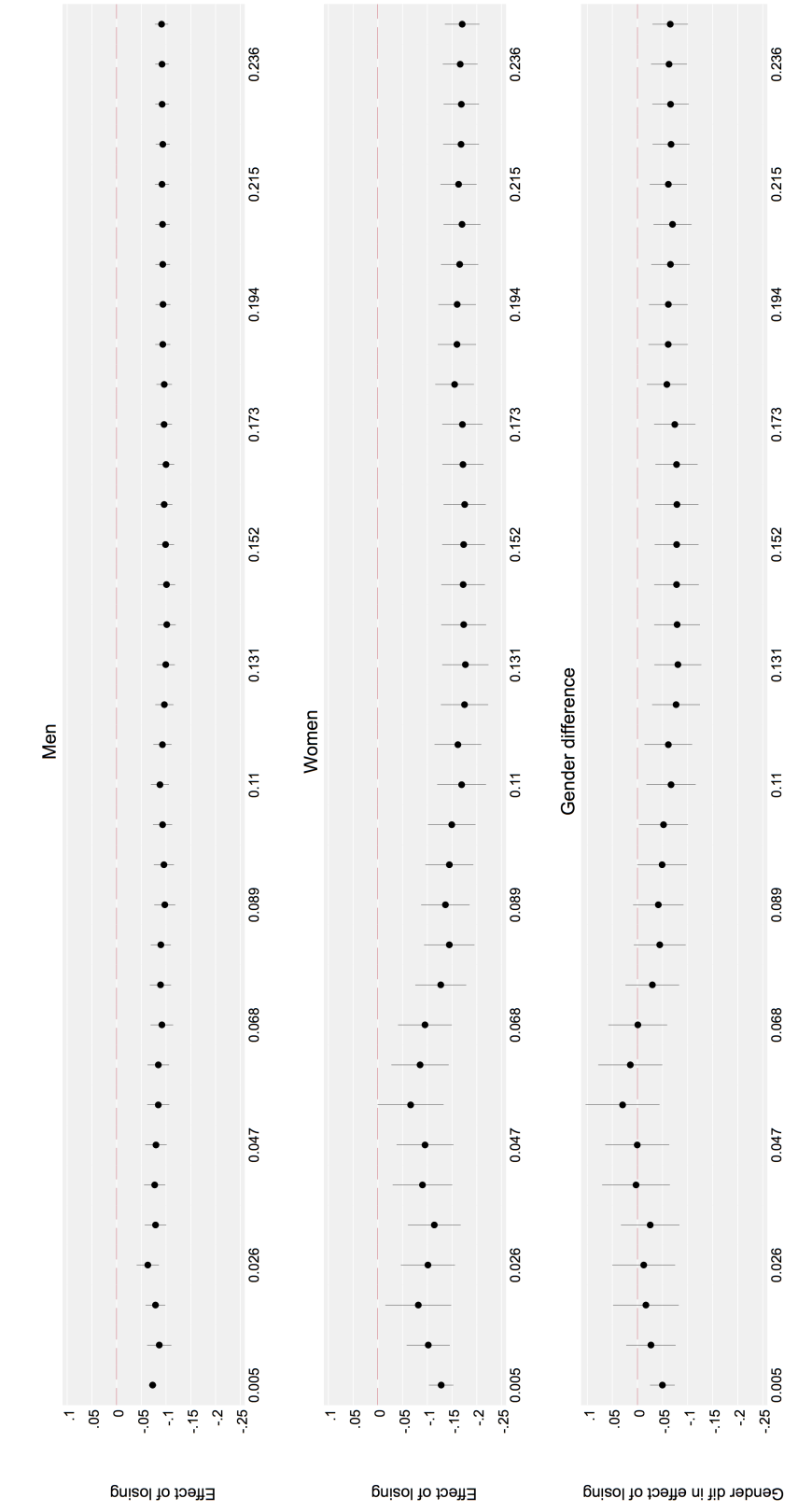


Table 3.3.1.A: Regression discontinuity results

Bandwidth	-/+ .09%	-/+ .17%	-/+ .2%	-/+ .25%
Percentile	5th	10th	12th	15th
	Difference in difference			
	Model 9	Model 10	Model 11	Model 12
Female	-0.140***	-0.183***	-0.196***	-0.214***
	(0.00478)	(0.00348)	(0.00321)	(0.00291)
Losing	-0.0363***	-0.0294***	-0.0335***	-0.0370***
	(0.0108)	(0.00811)	(0.00755)	(0.00694)
Female x Losing	-0.263***	-0.300***	-0.311***	-0.329***
	(0.00803)	(0.00538)	(0.00486)	(0.00428)
	First-order polynomial			
	Model 1	Model 2	Model 3	Model 4
Female	-0.102***	-0.0959***	-0.101***	-0.107***
	(0.00968)	(0.00693)	(0.00636)	(0.00574)
Losing	-0.0346	-0.0408**	-0.0310**	-0.0259*
	(0.0221)	(0.0159)	(0.0146)	(0.0133)
Female x Losing	-0.221***	-0.223***	-0.227***	-0.230***
	(0.017)	(0.0116)	(0.0105)	(0.00929)
	Second-order polynomial			
	Model 5	Model 6	Model 7	Model 8
Female	-0.0997***	-0.105***	-0.0969***	-0.0939***
	(0.0153)	(0.0107)	(0.00974)	(0.00876)
Losing	-0.0703*	-0.0468*	-0.0535**	-0.0489**
	(0.0359)	(0.0246)	(0.0224)	(0.0202)
Female x Losing	-0.215***	-0.229***	-0.226***	-0.224***
	(0.0274)	(0.0184)	(0.0166)	(0.0148)
Observations	52371	106428	128051	160481

* p<0.10 ** p<0.05 *** p<0.01

3.4 Analysis II: Ordinal logistic analysis

In this second analysis I address the gender gap in political ambition measured as candidate persistence from a different approach. I conduct a multivariate ordinal logistic analysis at different margins from the cutoff. This analysis complements the regression discontinuity for two reasons. First, the dependent variable is coded in a way that differentiates running for the same office from running for a higher office in the following election. Second, the analysis is controled for a battery of potential covariates that could be explaining the probability of running in the following election.

As in the regression discontinuity analysis, I am looking at the gender difference in the effect of losing an election. Formally, I am estimating:

$$Y_i = \alpha + \delta_1 L_i + \delta_s F_i + \delta_3 L_i \cdot F_i + c_i + \varepsilon_i$$

where Y is an ordinal indicator of candidate persistence for the same or higher ranked office in $t + 1$; L is a binary indicator for losing the seat in election t; F is a binary indicator for the sex of the candidate; and c is a battery of controls.

The dependent variable of this analysis is *candidate persistence (Y)*, coded 0 for those candidates who ran for the city council office at *t* but they did not run for any office at t+1, 1 for those candidate who ran for city council at t and they ran for the same office at t+1 (candidate static ambition), and 2 for those candidate who ran for city council at t and they ran for a higher rank office (regardless which one) at t+1 (candidate progressive ambition).

Table 3.4.A presents descriptive statistics of *candidate persistence* by year. Candidate persistence rate for same and higher ranked office are similar for all years except for 2012. Candidate persistence for the same office (static) in 2000, 2004 and 2008 was 34.91%, 36.26% and 35.93% respectively. Candidate persistence for higher ranked offices (progressive) for the same years is 1.71%, 1.73% and 1.97%, respectively. The decrease in 2012 in candidate persistence rates: 26.71% for same office and 1.47% for higher ranked offices is due to the increase in the number of candidates competing in that year.

Table 3.4.A Candidate persistence by year

Election Year (t)	Would not run in t+1	Would run in t+1 for CC	Would in t+1 for other office	Total
2000	171,220	94,305	4,630	270,155
	63.38%	34.91%	1.71%	
2004	148,581	86,864	4,134	239,579
	62.02%	36.26%	1.73%	
2008	149,123	86,305	4,743	240,171
	62.09%	35.93%	1.97%	
2012	239,634	89,104	4,895	333,633
	71.83%	26.71%	1.47%	
Total	708,558	356,578	18,402	1,083,538
	65.39%	32.91%	1.7%	

Source: Own elaboration from TSE

My two independent variables are *losing* (L) and *Female* (F). Losing is coded 1 for those candidates who lost the seat in election t, and 0 for those who won it. Female is coded 1

when the candidate is a female, and 0 for males. Based on the theory built in the previous chapter, I expect that Losing, Female and their interaction—i.e. the gender difference of the effect of losing an election—to negatively affect candidates' political ambitions.

The analysis includes a battery of control variables that can be theoretically associated with the *candidate persistence*. First, I control for *previous office experience*, for those candidates who had had an office at *t-1*. Previous experience in office could make candidates more knowledgeable about how politics works and more likely to tolerate an electoral setback. Then, candidates with previous office experience may be more likely to be more politically ambitious after an electoral setback than those without previous experience in offices, regardless their gender. I create seven binary variables for previous office experience, one for each office: governor, senator, federal deputy, mayor of big municipality, mayor of a small municipality, state deputy and city council member; coded 1 if the candidate had experience, and 0 otherwise.

I also control for previous experience as candidates at *t-1*. Similar to the experience in office, experience as a candidate can make candidates more tolerable to a setback. Therefore, I expect that previous experience as a candidate will be positively correlated with political ambition, regardless their gender. I crate seven variables for experience as candidates, one for each office: governor, senator, federal deputy, mayor of big municipality, mayor of a small municipality, state deputy and city council member; coded 1 if the candidate had experience as candidate in each of these offices and 0 otherwise.

Cultural factors may also affect candidate persistence. Specifically, conservatism could hinder women's desires to builds a political career. This type of cultural factors can exist inside of a country -states more conservatives than others- (Montero, 2012), or inside of each state -rural cities are in general more conservative than urban ones—(Soares, 1973). I address this variance by including two controls in my model. First, I use a variable from Latin American Public Opinion Project's (LAPOP) Americas Barometer, which measures support for women in politics.[23] I calculated the average for each state and each survey years[24] and values were assigned to the closest previous year of the election. I expect support for women in politics to be positively related to candidate persistence. Afterwards, to address the urban-rural variation I also included a dummy variable for those cities with more than 300,000 voters, coded 1 for those cities above this threshold. I expect cities with more than 300,000 to be less traditional, and consequently this should reduce the size of the gap because women are enabled to be more politically ambitious in cities than in rural areas.

I also control for institutional and partisan variables. First I include a dummy variable for the election held under the reform of gender quotas. Since this reform forced parties to include 30% of women in their ballots, I expect this election to have a smaller gender gap in political ambition. I also control for district—the number of seats at stake at the district—, party—the number of seats won by the party—and coalition magnitude—the

[23] The survey item asked, "In general, men are better political leaders than women; do you strongly agree, agree, disagree, or strongly disagree?" Positive values indicate more support for women.

[24] For missing values for states or years I proceeded with missing data imputation based on region (North, Northeast, Center-West, Southeast and South), state and/or year.

number of seat obtained by the coalition. Larger districts, larger parties and larger coalition magnitudes may increase a candidate's chances of winning the seat, and in these cases candidates may be more politically ambitious, regardless their gender.

Finally, I control for the number of candidates in the district, the number of candidates in the district-coalition and the number of candidates in the district-coalition-party. The more candidates running, the more competitive the election, and the more competitive the election, the less likely a candidate is to win the seat. Similarly, in more competitive districts, coalitions or parties, candidates would be less politically ambitious.

I conduct my analyses under two different bandwidths. I narrow down my dataset just for those candidates who lost or won for less than 0.09% (5^{th} percentile) and 0.17 (10^{th} percentile) of votes. By narrowing that the dataset at that point I am just analyzing those candidates who finished the election closer to the cutoff. I run four different model specifications for each bandwidth.

3.4.1 Results

Table 3.4.1.A has models 1 to 8. Models 1 and 5 in Table 3.4.1.A present the results for the ordinal logistic model. Model 2 and 6 include fixed effects by years, Then, Models 3 and 7 include random effects by district. Finally Models 4 and 8 have fixed effect by year and random effect by district. The complete models can be found in table 2 and 3 of the Appendix.

For the eight models the variables of interest and their interaction are statistically significant and in the expected directions. Female has a negative and statistically significant coefficient, meaning that women are less politically ambitious than men. Losing an election also has a negative and significant coefficient, meaning that decreases political ambition, in comparison with winning an election. Finally, the interaction between Female and Losing is negative and statistically significant, meaning that the negative effect of losing on political ambition is stronger for women than for men; or, in other words, that the gap in political ambition between men and women is larger when they face an electoral setback.

Table 3.4.1.A Results of the ordinal logistic analysis

Bandwidth -/+ .09 (5th percentile)				
	Model 1	Model 2	Model 3	Model 4
Specification		FE by year	RE by district	FE by year & RE by District
Female	-0.137***	-0.128***	-0.128***	-0.121***
	(0.0441)	(0.0442)	(0.0447)	(0.0447)
Losing	-0.532***	-0.536***	-0.518***	-0.522***
	(0.0206)	(0.0206)	(0.0209)	(0.0209)
Female X Losing	-0.296***	-0.290***	-0.284***	-0.278***
	(0.0537)	(0.0537)	(0.0544)	(0.0544)
Observations	55640	55640	55640	55640
Bandwidth -/+ .17 (10th percentile)				
	Model 5	Model 6	Model 7	Model 8
Specification		FE by year	RE by district	FE by year & RE by District
Female	-0.0959***	-0.0869***	-0.0850**	-0.0768**

	(0.0333)	(0.0333)	(0.0336)	(0.0336)
Losing	-0.581***	-0.585***	-0.568***	-0.572***
	(0.0153)	(0.0154)	(0.0155)	(0.0155)
Female X Losing	-0.307***	-0.302***	-0.292***	-0.289***
	(0.0392)	(0.0392)	(0.0396)	(0.0396)
Observations	109156	109156	109156	109156

* p<0.10 **p<0.05*** p<0.01
Note: Controls not reported. Full models available in table 2 and 3 in the Appendix.

Figure 3.4.1.A presents predicted probabilities for Model 1, while Figure 3.3.1.B presents predicted probabilities for Model 5.[25] Predicted probabilities report the probability of running in *t+1* for each gender at the same (static ambition) or a higher ranked office (progressive ambition) for those candidates who lost and won the seat in *t*. Dots represent the mean, while confidents intervals at 95% were reported with the spikes.

In both figures there is a gap between men and women for both types of ambitions between those who lost the election. Both estimations predict men who lost the election to be more politically ambitious than women in pursuing the same or a higher rank office. In the case of candidates who won the election, men are still more ambitious than women for both types of offices, but the confidence intervals of both groups are overlapped. This evidence supports hypothesis 1 by showing gender differences on candidate persistence between candidates who lost the election.

[25] Predicted probabilities were calculated through 1000 Monte Carlo simulations with the software Clarify (Tomz, Whittenberg & King, 2003). I set continuous variables at their mean and dichotomous variables at their mode.

Figure 3.4.1A: Predicted probabilities for running in next election (bandwidth: 0.09%)

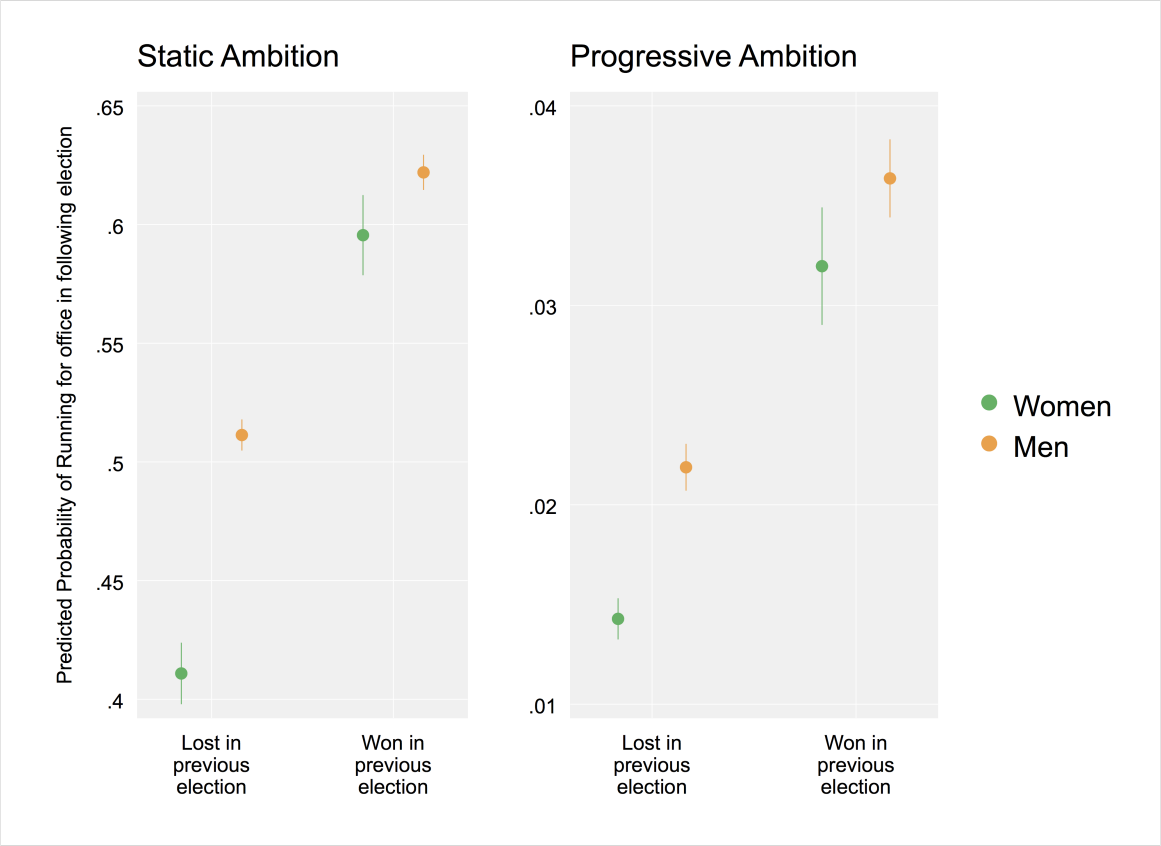
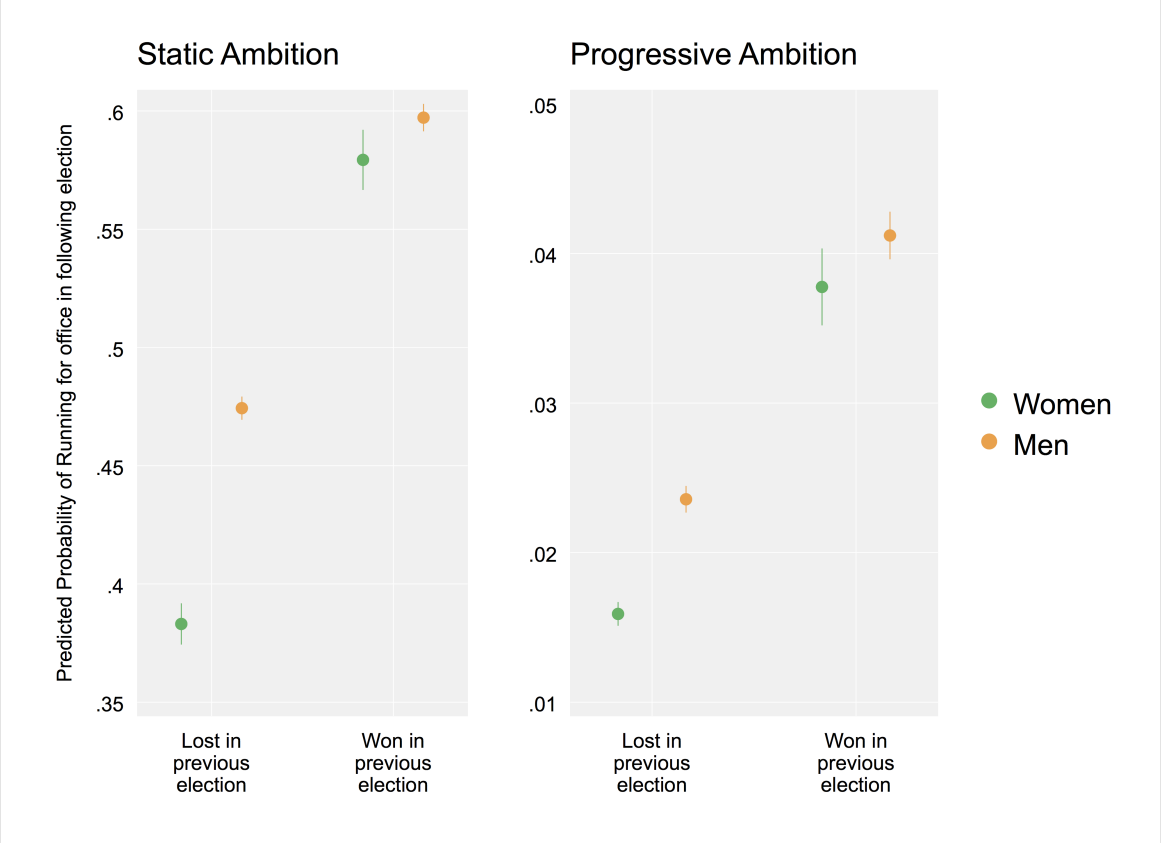


Figure 3.4.1.B: Predicted probabilities for running in next election (bandwidth: 0.17%)



3.5 Conclusions

In this chapter tested for gender differences in the effect of losing an election on candidate persistence among candidates. Candidates are self-selected group of the population who, by throwing their hat into the ring, they have shown to have political ambition. I argued that losing an election may the desire to run for office for both, men and women, but the effect may be stronger for women. In order to test my argument, I used two different empirical strategies. First, I ran a regression discontinuity design to address the differences in political ambitions between candidates who barely won and candidates who barely lost. Second, keeping the bandwidth used for the RDD, I

conducted an ordinal logistic model with three possible outcomes in t+1: not running again running for the same office, or running for a higher rank office.

Results in both analyses were consistent. Losing an election decreases political ambition regardless the sex on individuals who were already politically ambitious. However, the effect is stronger for women. In conclusion, I found evidence to support my hypothesis 1: the presence of gender difference in the effect of losing an election on political ambition.

Chapter 4: The advantage of previous experience as candidate

In the previous chapter I show that the effect of losing an election on political ambition is stronger for women than for men. After losing an election women are less likely than men to continue running for office in future elections. However, in order to address the consequences that this gap in political ambition has for descriptive representation, it must be shown that persistent running for office improves candidates' electoral performance regardless of gender. That is, that both, men and women can improve their performance by running with candidate experience. If this is the case that persistent candidates improve their performance in future elections regardless their gender; women would be running in disadvantage because fewer women are taking advantage of their previous experience as candidates.

In this chapter, I argue that the previous experience as a candidate has a positive effect on a candidates' electoral performance regardless of their gender. Using data from city council elections in Brazil from 2004 to 2016, I test my hypothesis with two measures of electoral performance: the candidates' probability of being elected, and the percentage of votes won by each candidate. I find that having previous experience in office improves chances of winning a seat at the city council for men and women. I also found that, regardless their sex, candidates with previous experience running for office got larger percentages of votes than candidates with no experience in election or in office.

This chapter proceeds as follows. First, I explain the theoretical reasons for why having previous experience running for office might make candidate more competitive in elections. I also argue the reason(s) why I do not expect gender differences on that effect. I then describe the data and the variables used for this chapter. Next, I present the results of the models for the two dependent variables: the probability of winning and the percentage of votes. Finally, I conclude by summarizing the findings and how they fit in my theory of candidate persistence.

4.1 The effect of previous experience in office

In a previous paper my colleagues and I show that previous experience as a candidate for a given office could increase the probability of being elected in other offices (Haime, Vallejo & Schwindt-Bayer, 2017). We argued that running for office at *t* makes candidates more knowledgeable about how to run a campaign, increases the candidates' networks, and makes candidates better known among voters at *t+1*. We found evidence that supports a positive effect of candidate experience on electoral performance.

In that paper, we provided three theoretical arguments for why candidate experience may improve future electoral performance. First, we argued that by running for office, candidates acquire knowledge on how to run an electoral campaign that can be used in future elections. Candidates with prior experience running for office may have more expertise than the newcomers on how to efficiently allocate the resources they fundraise

during the campaign (Sudulich & Wall, 2011, Sudulich, 2013). An efficient allocation of campaign resources may lead to improve a candidate's electoral performance.

Second, candidates who had already run for office, despite losing the seat, may be better known among voters. Voters may have seen these candidates during their campaign or in the ballots in the previous election. Consequently, the names of the candidates with prior candidate experience may sound more familiar to voters, increasing their name recognition and their chances of being elected (Stokes & Miller, 1962; Kam & Zechmeister, 2013)

Finally, previous candidate experience may improve candidates' networks in their parties and among donors. Party members and campaign donors can assistant candidates through public endorsements, making the candidate known among votes, and mobilizing voters (Boas et al. 2014; Arceneaux 2009; Jacobson 1978, Desmarais et al. 2015, Rosenstone & Hansen 1993; Snyder 1990). When running for office, candidates are in contact with these actors. Candidates who have previously run for office may also have an advantage with respect to the newcomers because they already know most of these actors. I expect a better electoral performance of those candidates who had previous networks among the party and the donors.

The first two mechanisms described above -the increase in candidates' knowledge on how to run an electoral campaign, and that running for office make candidates better known among voters- should not be different for men and women. Women may increase

their knowledge on how to run an electoral campaign after running for office as much as their male counterparts. In the same way, women may become better known among voters by running for office. However, some scholars have found patterns of gender marginalization among donors in the Brazilian case. These scholars have highlighted how relevant campaign contributions are in open list systems, and the disparities between men and women candidates in Brazil. These scholars have found evidence that male candidates perform better on Election Day because they fundraise significantly more money than their female counterparts, and that the gender gap on fundraising is due to a bias against women among donors (Sacchet & Speck, 2012; Sacchet & Speck, 2012a; Araujo, 2013; Speck & Mancuso, 2014). If these scholars are right, candidate experience should not help women to fundraise, as much as their male counterparts, because donors would discriminate against them regardless of whether they have previous experience in elections. However, these studies do not distinguish between newcomers, and candidates with previous campaign experience. It may be the case that donors favor male candidates, not because of the intrinsic effect of their gender, but rather because most candidates with experience running elections in Brazil are men. Given the fact that the arguments supporting a pattern of marginalization of campaign contributions against women are not conclusive, I expect that candidates with previous experience running for office have a better electoral performance than newcomers, regardless of gender:

H2: *Previous experience as candidate has a positive effect on candidates' electoral performance regardless of their gender*.

4.2 Data and methods

For this chapter I use data from city council elections in Brazil from 2004 to 2016.[26] Electoral performance is measured using two variables. The first variable is *seat won*, coded 1 for those candidates who got elected in election *t*, and 0 otherwise. However, though they did not get elected, candidate experience could still improve candidates' electoral performance. For that reason I include a second measure of electoral performance. *Vote share* is coded as the percentage of votes got by candidate *i* in election *t* over the total of positive votes in the election.

My first independent variable is *city council candidate experience*, coded 1 for those candidates who ran for the city council and lost the seat in *t-1*. *City council candidate experience* is coded 0 for newcomers (candidates with no experience running for city council in t-1) and for those candidates who ran and won the city council seat in t-1. The second independent variable is *female*, coded 1 for women and 0 for men. To test for different effects of *city council candidate experience* by gender, I interact the two independent variables.

I also include in the models a set of covariates related with the candidates' previous experience in elections, or in an office different than *city council candidate experience*. First, I include a dummy variable, *any candidate experience*, for those candidates with experience running for office in any other office than the city council. I also control for *city council office experience*, coded 1 for those candidates who had a seat at the city

[26] Despite my dataset starts in 2000, I just use the first year to the code previous experience for the following year, and then I drop the first year of the election.

council in *t-1*, and 0 otherwise. Finally, I include a dummy variable for those candidates' with previous experience in an office different than the city council: *any office experience*. I expect these three variables to have a positive effect on electoral performance.

In addition, I include a set of electoral, institutional, and cultural variables as controls. Regarding the electoral variables I include the number of candidates competing in the district, the number of candidates competing in the coalition, and the number of candidates competing in the party. In the three cases, the number of candidates is a proxy of the level of electoral competition in the district, the coalition and the party, respectively. For the three cases I expect that the more competitive the district, the coalition or the party, the worse the candidate's electoral performance. I also include the district magnitude as a control. Larger district magnitudes, i.e. more seats at stake, may increase a candidate's chances of winning. I also create a dummy variable for the elections with gender quotas after the 2009 mandate. Gender quotas increase the number of women competing, which may lead to a lower percentage of women elected over the total of women competing. I expect a negative effect on women's electoral performance, and no effect for the case of men.

Finally, I include two cultural variables for the support for women in politics. The first cultural variable is, *support for women*, which was created based on a question from Latin American Public Opinion Project's (LAPOP) Americas Barometer. The survey item asked, "*In general, men are better political leaders than women; do you strongly*

agree, agree, disagree, or strongly disagree?" Positive values indicate more support for women. Using survey data, I calculate the state-year average. For those missing years or states I proceeded with missing data imputation based on region (North, Northeast, Center-West, Southeast and South), state and/or year. Election years were merged with the closest previous year of the survey. I expect more support for women to increase women's chance of being elected, and negatively correlated with the men's chances of being elected. Finally I include a dummy, *big city*, variable for cities with more than 300,000 voters. Larger cities might be less conservative, and consequently, more supportive of women at elections. I expect *big city* to have a positive effect on women's electoral performance, and a negative effect on men's electoral performance. Table 4.2.A presents the descriptive statistics for the variables of the models.

Table 4.2.A Descriptive statistics: previous experience as candidate

Variable	N	Mean	SD	Min	Max
Seat won	1155197	0.13	0.34	0	1
Vote share	1155197	0.01	0.02	0	0.86
City council candidate experience	1155197	0.19	0.39	0	1
Any candidate experience	1155197	0.01	0.1	0	1
City council office experience	1155197	0.09	0.28	0	1
Any office experience	1155197	0.0001	0.01	0	1
Candidates competing in district	1155197	116.87	156.72	2	1369
Candidates competing in coalition	1155197	25.43	61.03	1	994
Candidates competing in party	1155197	10.7	9.55	1	88
District magnitude	1155197	9.9	6.1	9	55
Gender quotas	1155197	0.58	0.49	0	1
Support for women	1155197	2.84	0.33	1.88	3.58
Big city	1155197	0.05	0.21	0	1

The analysis consists in six different models. Model 1 is a logistic regression for the entire sample where the dependent variable is *seat won* and the independent variable, *city council candidate experience,* is interacted by *gender*. Model 2 is a fractional logistic regression, which uses vote share as dependent variable and it, interacts *city council candidate experience* by *gender*. Models 3 to 6 use split samples. Model 3 is a logistic model just for men, and Model 4 uses a logistic regression 4 just for women. Finally, for Models 5 and 6, I use a fractional logistic model where the dependent variable is vote share.

Formally, what I estimate in Model 1 is

$$Y_i = \alpha + \delta_1 X_i + \delta_2 F_i + \delta_3 X_i \cdot F_i + c_i + \varepsilon_i$$

where Y is an binary indicator of winning the city council office for candidate *i* in t; *X* is a binary indicator of *city council candidate experience*; *F* is a binary indicator for the sex of the candidate; and c is a battery of controls.

For Model 2 the estimation is

$$Y_i^2 = \alpha + \delta_1 X_i + \delta_2 F_i + \delta_3 X_i \cdot F_i + c_i + \varepsilon_i$$

where Y^2 is a fractional indicator of the percentage of votes obtained by candidate *i* in *t* over the total of valid votes in a given district; *X* is a binary indicator of *city council candidate experience*; *F* is a binary indicator for the sex of *i*; and c is the battery of controls.

For Models 3 and 4 I am estimating

$$Y_i^3 = \alpha + \delta_1 X_i + c_i + \varepsilon_i$$

where Y^3 is a binary indicator of winning the city council office for candidate *i* in t; *X* is a binary indicator for *city council candidate experience*; and c is a battery of controls. Model 3 is estimated in the subsample of the men in the dataset, while Model 4 is the subsample of women.

Similarly, Models 5 and 6 estimate

$$Y_i^4 = \alpha + \delta_1 X_i + c_i + \varepsilon_i$$

where Y^4 is a fractional indicator of the percentage of votes obtained by candidate i in t over the total of valid votes in a given district; X is a binary indicator *city council candidate experience*; and c is a set of control variables. Model 5 is estimated in the subsample of men, and Model 6, in the subsample of women.

4.3 Results

Figure 4.3.A presents the results for Models 1 through 6. I only report the results for the independent variables of interest. Marbles are the estimated coefficients, while lines represent 95% confidence intervals. The entire models can be found in Tables 4 in the Appendix. Results are consistent across specifications and for both dependent variables. For Model 1 and 2, the coefficient for *city council candidate experience* is positive and statistically significant, the coefficient for *women* is negative and statistically significant, and the interaction between these two variables is positive and statistically significant.

For Models 3 to 6, the coefficients for *city council candidate experience* are positive and statistically significant for both men (Models 3 and 5) and women (Models 4 and 6). The variable *city council candidate experience* is positively correlated with both measures of winning the seat and the percentage of votes obtained by candidates. For Models 1 and 2 being a woman is negatively related with winning a seat (Model 1) or the percentage of votes obtained (Model 2), but the interaction between being a woman and having *city council candidate experience* is positively related with both dependent variables.

For a better interpretation of the interactive terms, Figure 4.3.B presents the predicted probabilities of winning a seat based on Model 1 for men and women, with and without previous city council candidate experience respectively. Both genders improve their chances of being elected when they have city council candidate experience. However, the change from not having to having previous experience as candidates is larger for women. Women with no not experience at all have 3.54% chances of being elected, while the chances of women with city council candidate experience are 10.42% (change of 6.92%). With regard to the men, when they do not have any kind of experience their chances of winning are 9.61%, while when they have city council candidate experience their chances increase to 13.06% (change of 3.45%).

Figure 4.3.A Coefficients graphs for models 1 to 6: effect of candidate experience on

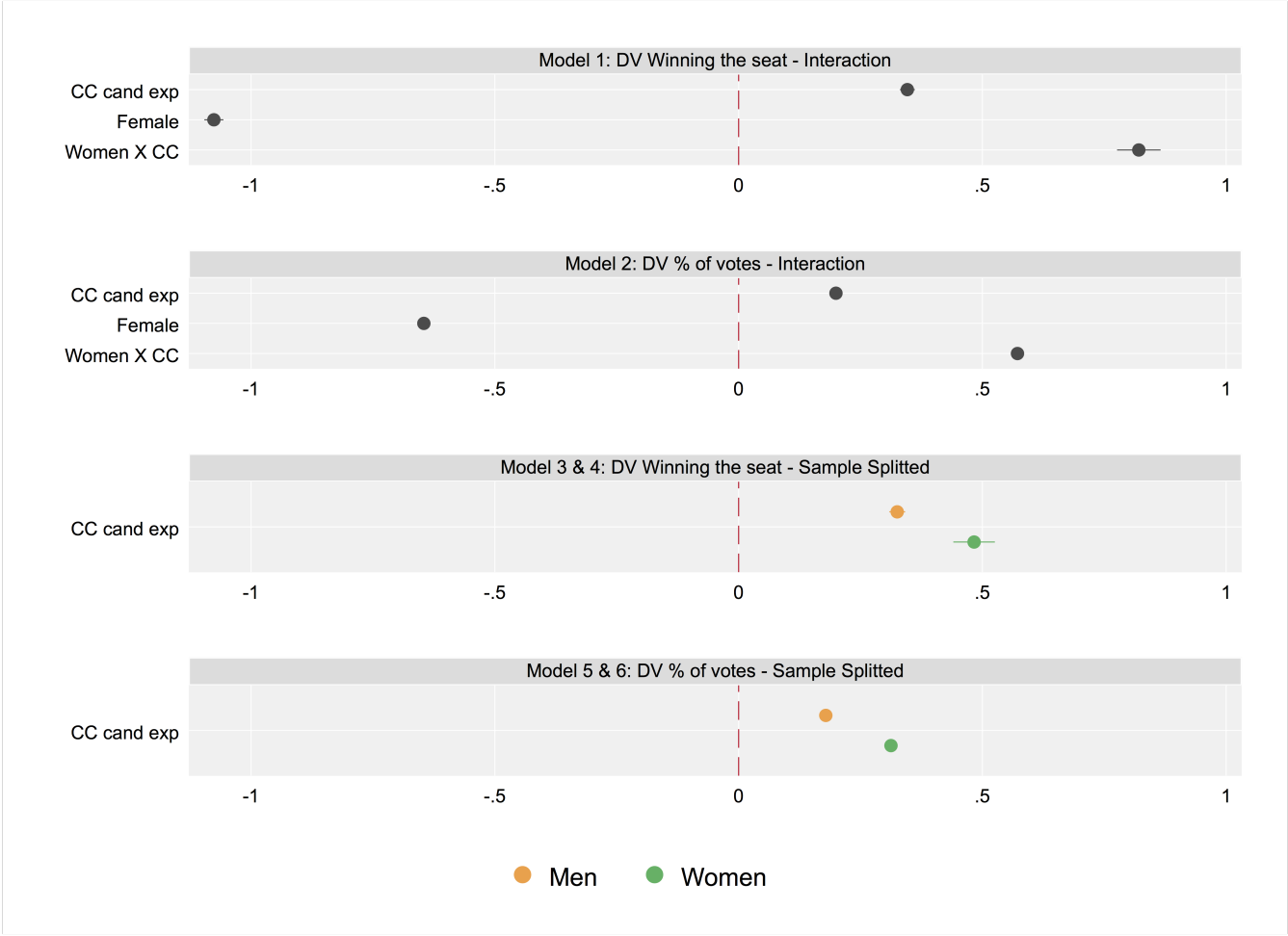
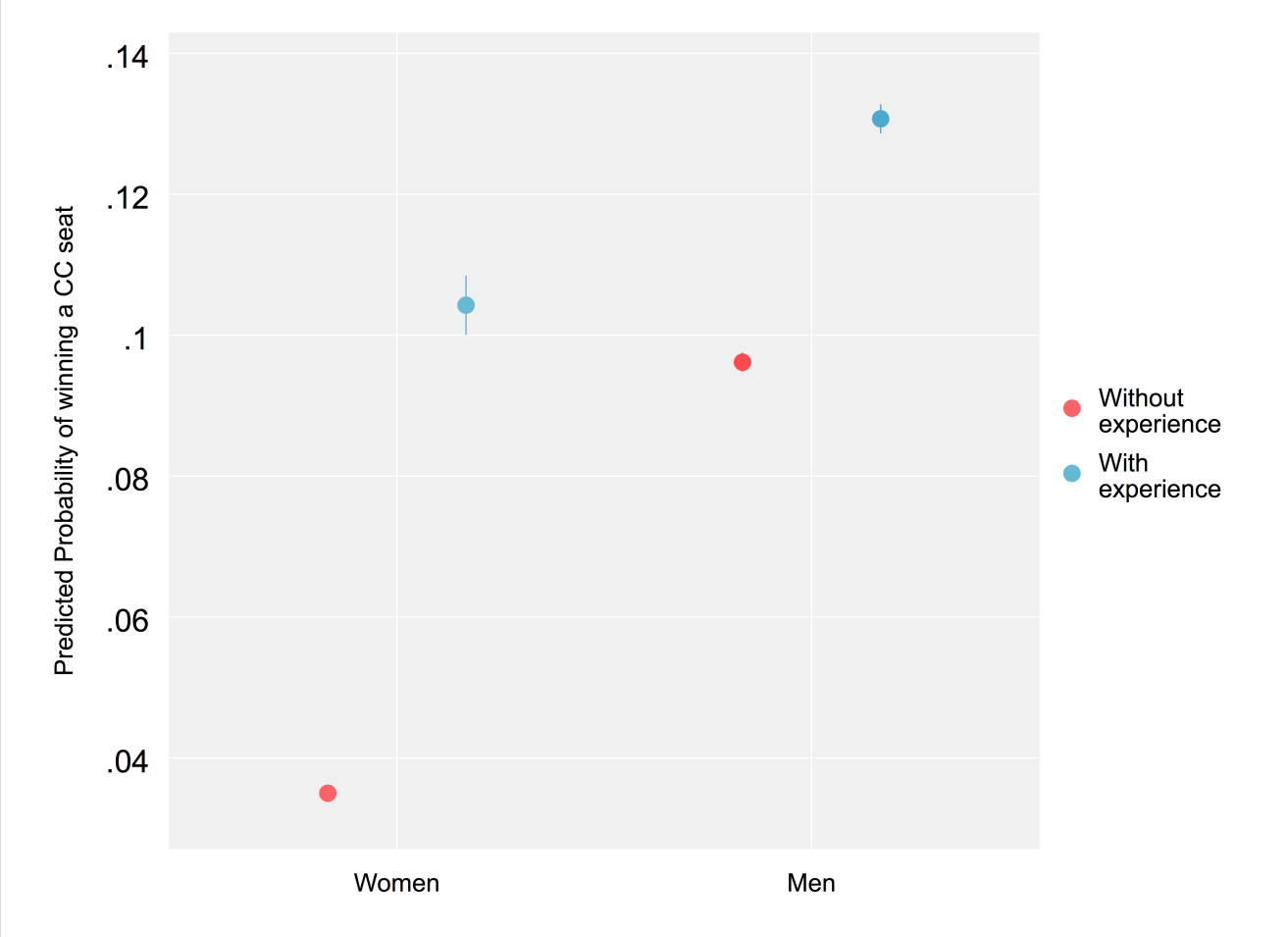


Figure 4.3.B Predicted probability of winning a seat for male and female candidates, with and without previous experience as candidates



4.4 Conclusions

In this chapter I examined whether previous experience as a candidate improves future electoral performance, regardless of the gender of the candidate. The motivation to pursue this question originated from the fact that, as shown in Chapter 3, women are less likely than men to continue running for office after losing an election. Despite previous research showing that previous campaign experience improves future electoral performance, there

were theoretical reasons to think that women would not benefit from their experience running for office compared to men.

As in a previous article, I argue that previous experience running for office may be beneficial for three reasons: it gives candidates knowledge on how to run a campaign; it gives candidates networks among party member and donors; and it makes candidates better known among voters. I hypothesized that men and women would improve their electoral performance from their previous experience as candidates. I tested my hypothesis with two different measures of electoral performance: candidates' probability of winning the seat, and the percentage of votes obtained by candidate. Previous candidate experience coded as a binary indicator of having run for the city council in *t-1*.

Results support my hypothesis. Previous experience as candidate is positively correlated with both measures of electoral performance regardless the gender of the candidate. Men and women show better electoral performance when they have previous experience running for office. Predicted probabilities show the difference in vote share between women with experience and women without experience is larger than the same type of change among men.

Viewing these results in light of the findings from Chapter 3, allows us to think about the consequences of the gender gap in candidate persistence. Candidates who persist running for office despite losing do better in elections than candidates with no experience. However, if women are less likely to persist in running after losing, women as a group would be

disadvantaged because the ratio of women running with prior experience as candidates would be lower than the ratio of men with this type of experience. In the following chapter I examine the magnitude of the effect of the gender gap in candidate persistence by looking at the gender composition of the municipal chambers.

Chapter 5: The consequences of the gender gap in candidate persistence on female descriptive representation

Does the gender gap in candidate persistence have consequences for descriptive representation? In Chapter 3, I show that women are less likely than men to continue running for office after losing an election (candidate persistence). Later, in Chapter 4, I found that men and women who had already run and lost the seat in previous elections (candidate experience) do better when they run than candidates with no experience at all. In view of these two findings, we may expect candidate persistence to have an effect on the percentage of women elected, through the effect of candidate experience. If women are less likely to persist in running after losing, they would be disadvantaged because the proportion of women running with prior experience as candidates would be lower than the proportion of men with this type of experience. In this chapter, I explore how the gender gap in candidate persistence has an effect on the percentage of women elected.

Using data from Brazilian municipal elections from 2004 to 2016, I test the effect of the gap in candidate persistence on women's descriptive representation, measured as the proportion of elected women in each election. I find that the percentage of women persisting in running for office is positively related with the percentage of women elected. In addition, I run

predicted probabilities for the election years as if there were no gender gap on candidate persistence. I find that if women persist in running for office in the same rate than men, i.e. as if there were no gender gap, they would get 2.5-3.5% more seats than their current number of seats in the municipal chambers.

The chapter proceeds as following. First, I briefly summarize the literature of female descriptive representation in Brazil, and I assert the hypothesis for this chapter. Next, I describe the data and methods used in the chapter. Later, I present the results for the models. Finally, I conclude by summarizing the findings.

5.1 Female descriptive representation in Brazil

Brazil ranks 153th in the world for female representation in parliament, according to data from the Inter-Parliamentary Union.[27] Just 10.7% of the members of the Brazilian lower chamber are women. A large set of literature has argued that the low percentage of women in Brazilian legislative offices is due to the open list, proportional representation electoral system (Miguel, 2008; Hoodfar & Tajali, 2011; Schmidt, 2008). This electoral system allows voters to cast their vote for individuals and influence the order in which candidates, in a party or coalition, are elected. In so far as voters can modify this order, candidates have to compete with candidates from other parties, but also from their own party. Under these rules, female candidates have poorly performed competing with their male counter parts.

[27] Values and ranking checked on October 28th, 2018

This situation is not exclusive of the Lower Chamber. All legislative offices in Brazil use the open list system, and all these offices have, on average, a low percentage of women occupying seats.

There are two main explanations for women's underrepresentation in open list system. The first explanation argues that voters may be discriminating against women (Jones and Navia, 1999; Htun and Jones, 2002). Voters may have the option of voting for female candidates, but they are not voting for them because they prefer male politicians. There is evidence that in open list systems, gender attitudes are context and culture-specific. For example, Schwindt-Bayer, et. al. show that in Ireland, voters prefer male candidates to females, while in Australia, voters prefer women. In Malta, gender does not make any difference for voters (Schwindt-Bayer et. al. 2010). However, this seems not to be the case for Brazil. Aguilar, et. al. have found a pro-women bias using a survey experiment in Sao Paulo. In particular, they find that both female and male voters are more likely to vote for females, with a 7% increase in support for a hypothetical candidates when that candidate is female instead of male (Aguilar et al, 2015).

The second explanation argues that financial campaign resources are unequally distributed between male and female candidates, to the detriment of the latter. Since electoral campaigns in Brazil are candidate-centered, the money each candidate can raise is determinant for winning elections (Samuels, 2001a; 2001b). Thus, if women candidates receive fewer resources than their male counterparts, they are disadvantaged because they may be less

visible to voters, regardless of voters' attitudes towards gender (Sacchet and Speck, 2012; Sacchet and Speck, 2012a; Araujo, 2013; Speck and Mancuso, 2014).

However, the relation between campaign financial resources and the probability of winning a seat is theoretically endogenous. It may not be that campaign financial resources influence the probability of winning elections, but the other way around: the probability of winning elections might increase the money raised for campaigns by a candidate. Those candidates who are first in the polls, with clear chances of being elected, are more likely to receive campaign contributions than those candidates with less or no chances of being elected. If that is the case, these studies would be omitting a third variable that is producing both: fundraising and winning elections.

In addition to the two previous explanations for the poor performance of women on open list systems, in this chapter I present a new explanation related with the gender gap in candidate persistence. In the previous chapter, I explained that candidate experience improves individual candidates' performance regardless their gender in open list system. Here, I argue that candidate experience also has consequences in the percentage of women elected. If candidate experience improves electoral performance at the candidate level (Anagol & Fujiwara, 2016; Haime, Vallejo & Schwindt-Bayer, 2017), a larger proportion of women with candidate experience running for office would lead to a larger number of women being elected. Specifically, I claim that:

H3: The larger the percentage of women with candidate experience running for legislative offices, the larger the percentage of women elected at those offices.

Formally, I estimate

$$Y_i = \alpha + \delta X_i + c_i + \varepsilon_i$$

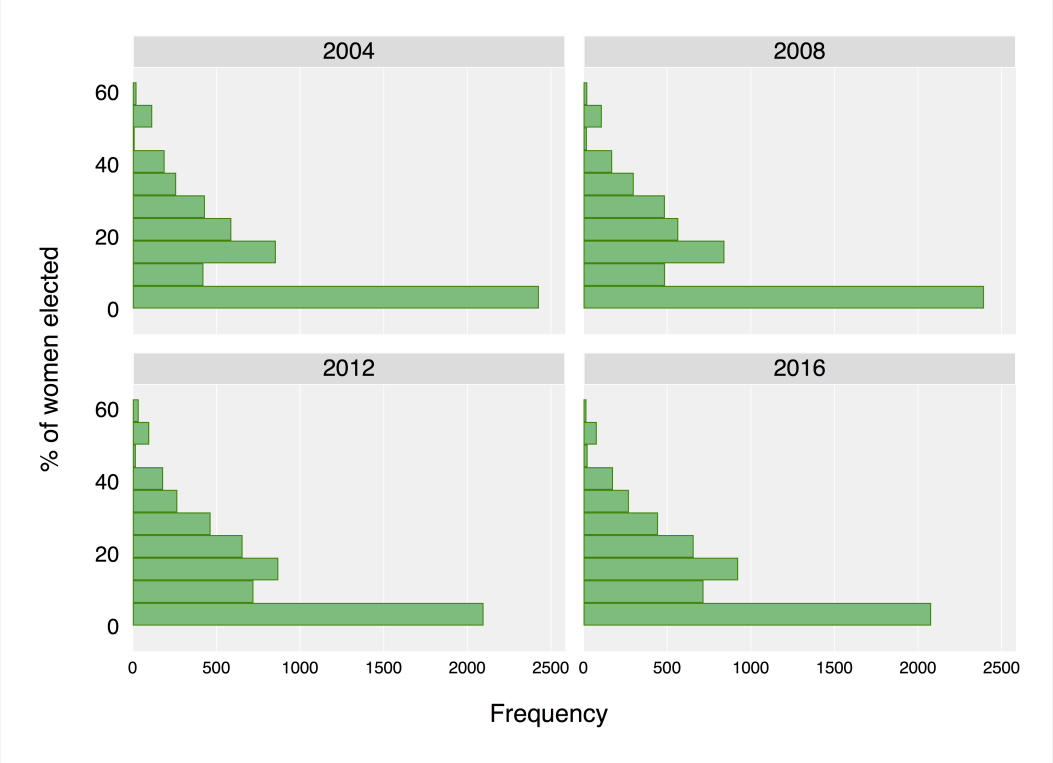
where Y is a fractional indicator of the proportion of women elected in each municipality i at time t; X is the ratio between women who had previously run for city council in $t-1$ and lost that seat, over the total of candidates running for i in t who are; and c is a set of controls.

5.2 Data and Methods

To test my hypothesis, I use data from Brazilian municipalities from 2004 to 2016 from *Tribunal Supremo Eleitoral*. In contrast with the previous chapter, here the unit of analysis is the municipal chamber instead of the candidates. In total, the dataset contains 21, 639 observations over a span of four election cycles (2004, 2008, 2012, and 2016).

The dependent variable of the analysis is *women elected*. This variable is measured as the percentage of women who won a seat over the total number of seats at stake, in each municipal chamber and in each election year. City council elections have the same electoral system as the Brazilian lower chamber. Also, the percentage of women elected is relatively low. Figure 5.2.A shows the frequency of the percentages of elected women by year. The mean for 2004, 2008, 2012 and 2016 are 12.72%, 12.51%, 13.25% and 13.12, respectively.

Figure 5.2.A: Frequency of percentages of women elected in Brazilian city chambers (2004-2016)



To test my hypothesis, I estimate two OLS and two fractional logistic models. Neither the dependent nor the main independent variable change across models. I expect the three models to be consistent in the direction of the relation between variables. One of the OLS models and one of the fractional logistic models include fixed effects by election year. The other two OLS and fraction logistic models control for gender quotas.[28] All four models are run with clustered standard error for district.

The models include several control variables. My first control variable is *percentage of men with candidate experience*, which is a fractional variable that takes the value of the

[28] Models with fixed effects are not controlled by gender quotas because of collinearity.

proportion of male candidates who run for the city council in $t-1$, lost the seat, and ran again in *t*. Since candidate experience improves electoral performance, I expect that the larger the percentage of men running with candidate experience, the smaller the percentage of women elected. I also control for the percentage of male and the percentage female incumbents. Given that incumbency increases candidates' chances of winning, the percentage of women running in *t* should be positively related with the percentage of women elected, while the percentage of men, negatively related. In addition, I include the number of women running for office in each election, for which I expect a positive relationship. Furthermore, I control for district magnitude. Existing literature about open list systems has shown that district magnitude does not facilitate (Schmidt, 2008), nor is it negatively related with the proportion of elected women (Araújo & García, 2006). Thus, I expect a negative relationship between district magnitude and the percentage of women elected. Additionally, I control for *big city*, which is a binary indicator for cities with more than 200,000 voters. I expect larger cities to be less conservative in social issues and consequently, more supportive with female candidatures. Then, *big city* should be positively related with the percentage of women elected (Soares, 1973). I also control for *support for women in politics*, a variable from Latin American Public Opinion Project's (LAPOP) Americas Barometer, which measures support for women in politics.[29] I calculated the average for each state and each survey years[30] and values were assigned to the closest previous year of the election. I expect *support for women* to be positively related with the percentage of women elected. Finally, I include *gender*

[29] The survey item asked, "In general, men are better political leaders than women; do you strongly agree, agree, disagree, or strongly disagree?" Positive values indicate more support for women.

[30] For missing values for states or years I proceeded with missing data imputation based on region (North, Northeast, Center-West, Southeast and South), state and/or year.

quotas, a binary indicator for the elections held after the reform of gender quotas (2009). The reform of gender quotas in Brazil mandate parties to have 30% of women in their ballots, which increased the number of women running for office. Consequently, I expect gender quotas to be positively related with the percentage of women elected. Table 5.2.A presents the descriptive statistics of the variables used in the analysis.

Table 5.2.A Descriptive statistics: % of women elected

Variable	N	Mean	SD	Min	Max
% of women elected	21639	0.13	0.14	0	0.63
% of women with candidate experience	21639	0.04	0.03	0	0.24
% of men with candidate experience	21639	0.14	0.07	0	0.52
% of female incumbent running	21639	0.02	0.03	0	0.33
% of male incumbent running	21639	0.1	0.07	0	0.8
Number of women running	21639	14.95	16.48	0	404
District magnitude	21639	7.03	3.12	9	55
Big city (+200.000)	21639	0.01	0.07	0	1
Support for women	21639	2.81	0.33	1.88	3.58
Gender quota	21639	0.5	0.5	0	1

5.3 Results

Table 5.3.A presents the results of four models testing the effect of the *percentage of women with candidate experience* on the percentage of *women elected*. Model 1 is an OLS model with fixed effects by year; Model 2 is a OLS model which controls for gender quotas; Model 3 is a fractional model with fixed effects by years; and Model 4 is a fractional model which controls for the presence of regulated gender quotas.

The directionality of the estimates within the four models is consistent with my expectations: the percentage of women with candidate experience is positively related with the percentage of women elected. The results are statistically significant to a 99% confidence level.

Table 5.3.A: Models for the effect of women running with candidate experience on the percentage of women elected

	Model 1	Model 2	Model 3	Model 4
	OLS	OLS	Fractional	Fractional
% of women with candidate experience	0.355***	0.324***	3.138***	2.873***
	(0.0320)	(0.0314)	(0.271)	(0.268)
% of men with candidate experience	-0.122***	-0.120***	-1.069***	-1.055***
	(0.0153)	(0.0153)	(0.142)	(0.142)
% of female incumbent running	1.797***	1.796***	12.83***	12.82***
	(0.0508)	(0.0508)	(0.347)	(0.348)
% of male incumbent running	-0.213***	-0.218***	-2.145***	-2.184***
	(0.0149)	(0.0148)	(0.149)	(0.149)
Number of women running	-0.000176**	-0.000196**	-0.00173**	-0.00189**
	(0.0000827)	(0.0000824)	(0.000784)	(0.000782)
District magnitude	-0.000784*	-0.000777*	-0.00535	-0.00535
	(0.000434)	(0.000435)	(0.00403)	(0.00404)
Big city (+200.000)	0.0320**	0.0340**	0.244*	0.260**
	(0.0161)	(0.0160)	(0.130)	(0.129)
Support for women	-0.0228***	-0.0122***	-0.202***	-0.113***
	(0.00378)	(0.00318)	(0.0325)	(0.0282)
Gender quota		0.00241		0.0246
		(0.00213)		(0.0190)
2008	-0.00342		-0.0359	
	(0.00259)		(0.0240)	
2012	0.0125***		0.110***	
	(0.00309)		(0.0276)	
2016	-0.00768***		-0.0651**	
	(0.00282)		(0.0253)	
Observations	21639	21639	21639	21639

* p<0.10 ** p<0.05 *** p<0.01

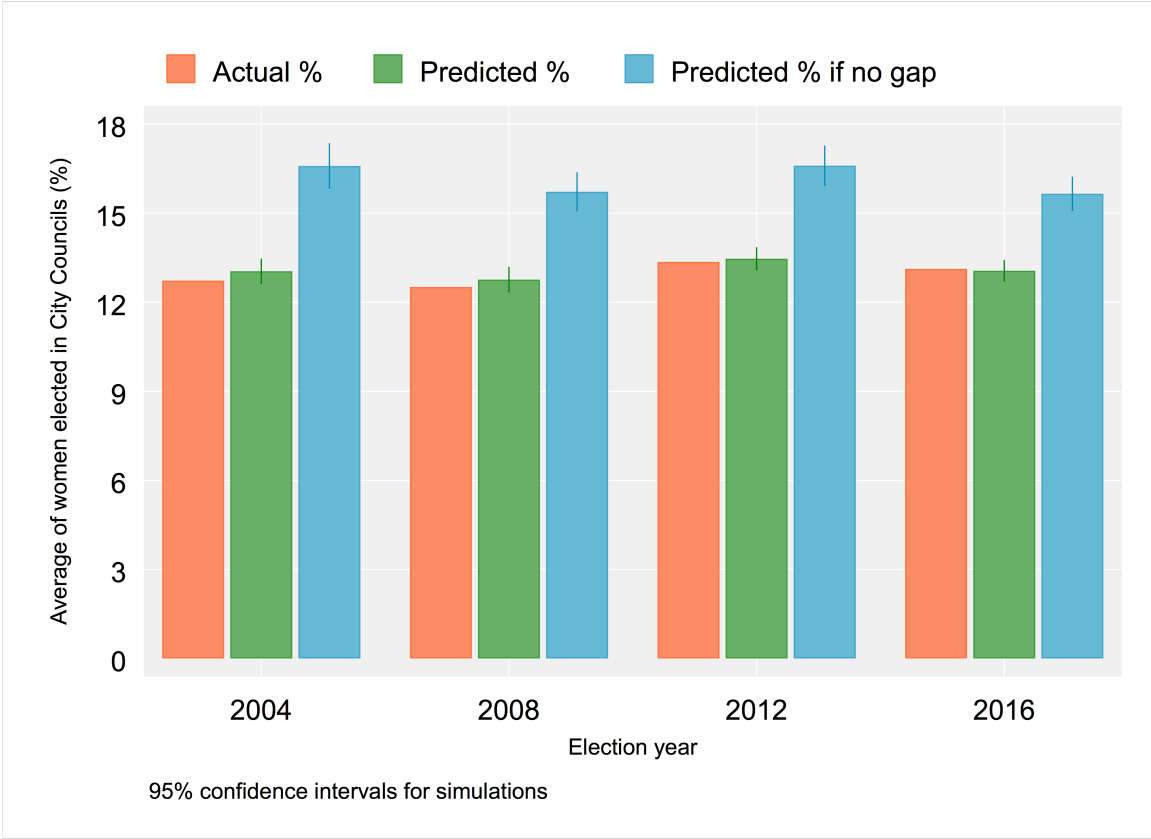
For a better understanding of the magnitude of the relationship that the percentage of women with candidate experience has on the percentage of women elected, Figure 5.3.A presents the real data and simulations based on Model 1.[31] For this chapter I am not interested in the effect of the percentage of women with candidate experience itself, but in the effect of the gender gap in candidates with previous experience running for office on the percentage of women elected. For that reason, I present the predicted probabilities in an unusual way. The y-axis shows the average percentage of elected women in all municipalities, while the x-axis displays the election year. For all years, the orange bars display the actual average percentage of women elected in all the Brazilian city council included in the dataset. The green bars show the simulated average of elected women for all municipalities calculated using the actual percentage of women with candidate experience in each year, and its 95% confidence intervals. Finally, the blue bars shows the simulated average percentage of elected women for all municipalities estimated using, instead of the percentage of women, the percentage of men with candidate experience in that election, and its 95% confidence intervals. In other words, the blue bars shows the percentage of women elected as if there were no gap in candidate persistence between men and women.

As expected, the differences between the simulation at actual values of women's candidate experience and the simulation with no gender gap are statistically significant. For 2004, the simulated percentage of women at the actual values of women with candidate experience was 13.04%, while the simulation was 16.58 % (3.54% difference). For 2008, the estimated

[31] Simulations were calculated through 1000 Monte Carlo simulations with the software Clarify (Tomz, Whittenberg & King, 2003). I set continuous variables at their mean and dichotomous variables at their mode.

values were 12.76% and 15.72%, correspondingly (2.96% difference). For 2012, the estimations were 13.46% and 16.59%, respectively (3.13% difference). Lastly, for 2016 the simulation at actual values was 13.05, while the simulation for a no gap situation was 15.65 (2.59%. difference).

Figure 5.3.A Real and simulated % of elected women



5.4 Conclusions and discussion

In this chapter I examined whether the percentage of women running with candidate experience in a given election increases the percentage of women elected in that election. The motivation to pursue this question originated from the fact that, as shown in previous chapters I had shown that a) women are less likely than men to continue running for office after losing an election (gender differences in candidate persistence); and b) candidates with

previous experience running for office (candidate experience) do better in future elections than candidates with no experience running for office. Consequently, we may expect the gender gap in candidate persistence at the aggregate level to have consequences on the outcome of the election.

To test my expectation I used data from the municipalities in Brazil. In concrete, I look at the effect of the percentage of women with candidate experience on the percentage of women elected. Findings supported my expectation. The percentage of women with candidate experience is positively related with the percentage of women elected at the municipal chamber. I simulated a scenario with no gender gap, where the same percentage of men and women with candidate experience run for office. I found that if there were no gender gap women would have won from 2.5 to 3.5% more seats.

Chapter 6: Conclusion

Previous studies have argued that women are less politically ambitious than men. They found that when comparing potential candidates, women are less likely than men to start a political career, and when comparing elected officials, women are less likely than men to run for higher offices. The question of what happens with the political ambitions of those candidates who run and lose has not been explored. In this dissertation I filled this lacuna by developing a theory for a gendered effect of losing an election on the probability of rerunning in future elections: candidate persistence.

6.1 Basic findings

Chapter 2 reviews the literature on the gender gap in political ambition and sets up the theory used in the following chapters for the gender gap in candidate persistence and its consequences on representation. I argued that we might expect a gender gap in candidate persistence because women feel less qualified to run for office than their male counterpart with equal qualifications. Thus, a negative update on their initial perception about their skills as candidates may be stronger for women. I also argue that the gap in candidate persistence have consequences on descriptive representation. If fewer women than men persist as candidates, fewer women than men would be taking advantage of their prior experience as candidates which, as has been shown, improves candidates' electoral performance.

I tested my theory in Brazilian city council elections for several reasons. First, the electoral system in Brazil promotes intraparty competition. In order to get elected, candidates depend on the number of votes they got. So, they have incentive to get more votes than their co-

partisans. Second, because of the cost of a campaign and the political career pattern in Brazil, city council elections are the place where political career starts. Third, gender quotas in Brazil sharply increased the number of women running for office. This makes Brazilian city council elections a good case to test my theory with a considerable number of candidates of both genders. Finally, I argued that Brazil could be considered a case were men and women's political ambition differs.

In Chapter 3, I test the gender difference in the effect of losing an election on candidate persistence using two different strategies. The first strategy involves a regression discontinuity design. I compare candidates who barely won and barely lost and election to calculate the effect of losing. Later, I estimate the difference of the effect of losing between men and women. Differences are statistically significant: after losing an election, women are less likely to continue running for office than their male counterpart. In Chapter 3 I also analyze the gender difference in the effect of losing an election on candidate persistence using an ordinal logistic model. With this specification, I differentiate between the probabilities of not running, running for the same office and running for a higher rank office in the following election. Results are consistent with regression discontinuity. Female are less likely to run for office after losing an election, for the same or higher ranked office.

In Chapter 4, I test if there are gender differences in the effect of having previous experience running for office and losing on the candidates' electoral performance. I test my hypothesis using two measures of candidate's electoral performance: the probability of winning a seat and the percentage of votes obtained by each candidate. I find that having candidate

experience is positively related with both measures of electoral performance regardless the gender of the candidate. Both, men and women improve their chances of being elected and their chances of winning a seat when they have candidate experience.

In Chapter 5 I look at the consequences of candidate persistence at the aggregate level. I find that the percentage of women running with previous candidate experience is positively correlated with the percentage of women elected. Predicted probabilities, based on values of previous elections, estimate that in a scenario of no gender gap in candidate persistence, women would have gotten from 2.5% to 3.5% more seats.

In light of the three empirical chapters, the gender gap in candidate persistence (the behavior of running for office despite having lose) is related with gender descriptive representation. If women are less likely to continue running for office after losing than men, fewer women would be running with candidate experience. Then, if candidate experience improves candidates' electoral performance, men would be more likely to get elected because more men than women would be running with candidate experience. Consequently, the gender gap in candidate persistence is negatively related with the percentage of women elected, through the effect of candidate experience.

6.2 Further research

Further research should continue testing the effect of losing an election on candidate persistence under different electoral system. Open list PR provides a competitive environment to test the effect of losing. However, other electoral system with no incentives

for intraparty competition may moderate the effect of losing. For example, in closed list system the ranking of candidate that get elected, and the electoral campaign in general, are mostly decided and run by the parties or its leaders. In closed list systems candidates know from beforehand how likely they are to get the seat, and that getting elected does not depend on them. Then, regardless their gender, the frustration after losing the seat would not be a big as in electoral systems where winning or losing largely depends on them. In contrast, single member district elections present a candidate centered environment, where the candidate is largely responsible of the number of votes he or she get. Here, as in open list elections, we may expect a strong effect of losing but also a gender gap on this effect.

Another area to explore is, instead of the effect of losing, the effect of winning. Winning may have a positive effect on candidate's political ambition. A large literature on the incumbent effect has discussed all the advantages that incumbents have to continue running and they increase their political ambition. Winning an election could also have different effects on political ambition depending on the gender of the candidate. If women are less self confident about their skills as candidates, winning an election may update their prior beliefs in a stronger manner than for men, who are already confident enough on their qualifications. By winning an office, women would show themselves that they more qualified than what they thought, sharply increasing their confidence, and subsequently, their political ambition.

6.3 Implications

The gender gap in candidate persistence may have implications in other areas of study. Business, athletic and academic careers, as equal as politics, requires ambition, willingness

for competition and frustration tolerance. If the gender gap in candidate persistence has a correlate in professional careers, it could be relevant to explain careers choices and outcomes. It would be particularly pertinent to explore why the pipeline theory is no producing the expected gender equality in top positions in business (Bertrand and Hallock, 2001; Bertrand, Goldin, & Katz 2010), STEM science (Fischer, 2015), and academia (National Science Board, 2014).

Appendix

Table 6.1: District Magnitude for Brazilian City chambers by population

Inhabitants in city		# of city council members
Minimum	Maximum	
	15000	9
15001	30000	11
30001	50000	13
50001	80000	15
80001	120000	17
120001	160000	19
160001	300000	21
300001	450000	23
450001	600000	25
600001	750000	27
750001	900000	29
900001	1050000	31
1050001	1250000	33
1250001	1350000	35
1350001	1500000	37
1500001	1800000	39
1800001	2400000	41
2400001	3000000	43
3000001	4000000	45
4000001	5000000	47
5000001	6000000	49
6000001	7000000	51
7000001	8000000	53
8000001		55

Table 6.2: Ordinal Logistic model. Bandwidth 0.09%

	Model 1	Model 2	Model 3	Model 4
Female	-0.135***	-0.127***	-0.126***	-0.120***
	(0.0441)	(0.0441)	(0.0447)	(0.0447)
Losing	-0.523***	-0.527***	-0.510***	-0.513***
	(0.0206)	(0.0206)	(0.0209)	(0.0209)
Female X Losing	-0.300***	-0.294***	-0.287***	-0.282***
	(0.0537)	(0.0537)	(0.0544)	(0.0544)
% of votes	2.771***	2.768***	2.293**	2.596***
	(0.851)	(0.852)	(0.951)	(0.949)
Previous Experience in office				
State Deputy	3.268***	3.382***	3.505***	3.589***
	(1.156)	(1.160)	(1.166)	(1.174)
Mayor Small Municipality	-0.0464	0.0435	-0.00300	0.0719
	(0.712)	(0.711)	(0.722)	(0.720)
City Council	0.393***	0.455***	0.390***	0.444***
	(0.0251)	(0.0263)	(0.0254)	(0.0266)
Previous experience as candidate				
Federal Deputy	1.384***	1.358***	1.387***	1.368***
	(0.165)	(0.164)	(0.165)	(0.164)
Senator	2.759***	2.756***	2.703***	2.708***
	(0.614)	(0.614)	(0.620)	(0.620)
State Deputy	1.015***	0.992***	0.987***	0.970***
	(0.0934)	(0.0933)	(0.0941)	(0.0940)
Governor	1.401	1.387	1.542	1.553
	(1.144)	(1.177)	(1.185)	(1.219)
Mayor Big Municipality	-0.434	-0.404	-0.388	-0.369
	(1.061)	(1.049)	(1.028)	(1.021)
Mayor Small Municipality	0.216	0.264	0.237	0.278
	(0.176)	(0.176)	(0.178)	(0.178)
City Council	0.653***	0.712***	0.641***	0.692***
	(0.0242)	(0.0251)	(0.0245)	(0.0255)
Support for women in politics	-0.0585**	0.0713**	-0.107***	0.0397
	(0.0283)	(0.0321)	(0.0313)	(0.0355)

Big city	-0.179***	-0.181***	-0.106	-0.143
	(0.0574)	(0.0579)	(0.0884)	(0.0882)
Gender quota	-0.184***		-0.170***	
	(0.0199)		(0.0205)	
Candidates competing in district	0.000321**	0.000382***	0.0000732	0.000278
	(0.000136)	(0.000136)	(0.000185)	(0.000185)
Candidates competing in coalition	-0.00183***	-0.00171***	-0.00147***	-0.00138***
	(0.000157)	(0.000158)	(0.000168)	(0.000168)
Candidates competing in party	0.0151***	0.0139***	0.0117***	0.0109***
	(0.00156)	(0.00157)	(0.00167)	(0.00166)
District magnitude	-0.0105***	-0.0101***	0.00132	0.000246
	(0.00199)	(0.00200)	(0.00263)	(0.00261)
Coalition magnitude	0.0322***	0.0357***	0.0172***	0.0218***
	(0.00603)	(0.00607)	(0.00636)	(0.00639)
Party magnitude	-0.0343***	-0.0410***	-0.0172**	-0.0247***
	(0.00823)	(0.00826)	(0.00858)	(0.00860)
2000		0		0.427***
		(.)		(0.0308)
2004		-0.222***		0.235***
		(0.0264)		(0.0310)
2008		-0.193***		0.257***
		(0.0269)		(0.0305)
2012		-0.448***		
		(0.0294)		
cut1	-0.757***	-0.499***	-0.849***	-0.0981
	(0.0861)	(0.0968)	(0.0943)	(0.122)
cut2	3.177***	3.440***	3.130***	3.884***
	(0.0887)	(0.0994)	(0.0965)	(0.124)
Variance (random effect by district)			0.0726***	0.0679***
			(0.00747)	(0.00726)
Observations	55640	55640	55640	55640

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01

Table 6.3: Ordinal Logistic model. Bandwidth 0.17%

	Model 1	Model 2	Model 3	Model 4
Female	-0.0913***	-0.0825**	-0.0805**	-0.0725**
	(0.0333)	(0.0333)	(0.0336)	(0.0336)
Losing	-0.577***	-0.581***	-0.564***	-0.568***
	(0.0153)	(0.0154)	(0.0155)	(0.0155)
Female X Losing	-0.310***	-0.306***	-0.296***	-0.293***
	(0.0392)	(0.0392)	(0.0396)	(0.0396)
% of votes	4.097***	4.114***	4.308***	4.664***
	(0.605)	(0.606)	(0.692)	(0.690)
Previous experience in office				
Federal Deputy	31.29	31.41	34.83	35.08
	(1182092.0)	(1182092.0)	(6393919.5)	(6977916.4)
State Deputy	1.747	1.766	1.895*	1.887*
	(1.088)	(1.102)	(1.093)	(1.104)
Mayor Small Municipality	-0.897*	-0.839*	-0.884*	-0.830*
	(0.492)	(0.491)	(0.498)	(0.496)
City Council	0.411***	0.468***	0.408***	0.456***
	(0.0185)	(0.0193)	(0.0187)	(0.0195)
Previous experience as candidate				
Federal Deputy	1.501***	1.480***	1.450***	1.438***
	(0.108)	(0.108)	(0.108)	(0.108)
Senator	2.125***	2.123***	2.071***	2.076***
	(0.510)	(0.508)	(0.515)	(0.512)
State Deputy	1.086***	1.067***	1.046***	1.033***
	(0.0616)	(0.0616)	(0.0620)	(0.0620)
Governor	3.196***	3.206***	3.254***	3.273***
	(0.705)	(0.710)	(0.709)	(0.712)
Mayor Big Municipality	0.939	0.989	0.845	0.879
	(0.753)	(0.753)	(0.744)	(0.745)
Mayor Small Municipality	0.216*	0.256**	0.220*	0.255*
	(0.129)	(0.129)	(0.131)	(0.131)
City Council	0.640***	0.692***	0.622***	0.667***
	(0.0170)	(0.0176)	(0.0172)	(0.0178)
Support for women in politics	-0.0727***	0.0669***	-0.134***	0.0340
	(0.0203)	(0.0230)	(0.0230)	(0.0264)
Big city	-0.340***	-0.349***	-0.355***	-0.393***
	(0.0385)	(0.0388)	(0.0669)	(0.0665)

Gender quota	-0.200***		-0.186***	
	(0.0142)		(0.0147)	
Candidates competing in district	0.0000318	0.000117	0.0000635	0.000283**
	(0.0000837)	(0.0000839)	(0.000121)	(0.000121)
Candidates competing in coalition	-0.00142***	-0.00128***	-0.00117***	-0.00109***
	(0.0000974)	(0.0000979)	(0.000103)	(0.000103)
Candidates competing in party	0.00885***	0.00794***	0.00609***	0.00568***
	(0.00100)	(0.00100)	(0.00106)	(0.00106)
District magnitude	-0.00536***	-0.00538***	0.00323*	0.00205
	(0.00134)	(0.00134)	(0.00179)	(0.00179)
Coalition magnitude	0.0283***	0.0328***	0.0159***	0.0214***
	(0.00439)	(0.00441)	(0.00459)	(0.00462)
Party magnitude	-0.0121**	-0.0200***	0.00377	-0.00521
	(0.00583)	(0.00585)	(0.00608)	(0.00610)
2000				0.453***
				(0.0224)
2004		-0.205***		0.277***
		(0.0187)		(0.0224)
2008		-0.194***		0.277***
		(0.0192)		(0.0221)
2012		-0.468***		
		(0.0210)		
cut1	-0.726***	-0.434***	-0.830***	0.0144
	(0.0615)	(0.0688)	(0.0693)	(0.0903)
cut2	2.990***	3.287***	2.921***	3.768***
	(0.0632)	(0.0704)	(0.0707)	(0.0918)
Variance (Random effects by district)			0.0605***	0.0564***
			(0.00483)	(0.00467)
Observations	109156	109156	109156	109156

Standard errors in parentheses
="* p<0.10 ** p<0.05 *** p<0.01"

Table 6.4: Models for the effect of candidate experience on electoral performance

DV	Model 1 Seat won	Model 2 Vote share	Model 3 Seat won	Model 4 Seat won	Model 5 Vote share	Model 6 Vote share
City council candidate experience	0.346***	0.200***	0.325***	0.483***	0.179***	0.312***
	(0.00783)	(0.00273)	(0.00830)	(0.0217)	(0.00291)	(0.00696)
Female	-1.076***	-0.646***				
	(0.00998)	(0.00357)				
CC cand exp X Female	0.821***	0.572***				
	(0.0228)	(0.00682)				
Any candidate experience	0.949***	0.449***	0.883***	1.470***	0.413***	0.708***
	(0.0300)	(0.0123)	(0.0311)	(0.0900)	(0.0129)	(0.0372)
City council office experience	1.933***	0.783***	1.931***	2.710***	0.781***	1.310***
	(0.00929)	(0.00322)	(0.00930)	(0.0233)	(0.00326)	(0.00731)
Any office experience	1.329***	0.657***	1.299***	1.769**	0.657***	0.648**
	(0.192)	(0.0789)	(0.196)	(0.757)	(0.0820)	(0.257)
Candidates competing in district	-0.00954***	-0.0127***	-0.00930***	-0.0115***	-0.0124***	-0.0142***
	(0.000285)	(0.000122)	(0.000274)	(0.000604)	(0.000122)	(0.000186)
Candidates competing in coalition	0.00114**	0.00727***	0.000777	0.00300**	0.00718***	0.00670***
	(0.000506)	(0.000221)	(0.000486)	(0.00119)	(0.000217)	(0.000460)
Candidates competing in party	0.0145***	0.00204***	0.0160***	0.00422**	0.00239***	-0.000750
	(0.000798)	(0.000359)	(0.000822)	(0.00192)	(0.000370)	(0.000687)
District magnitude	0.0824***	0.0190***	0.0799***	0.0994***	0.0187***	0.0214***
	(0.00219)	(0.000747)	(0.00219)	(0.00412)	(0.000762)	(0.00119)
Gender quotas	0.0908***	0.0452***	0.145***	-0.264***	0.104***	-0.258***
	(0.00695)	(0.00296)	(0.00736)	(0.0175)	(0.00312)	(0.00601)
Support for women	-0.0429***	-0.00295	-0.0225**	-0.149***	-0.00617	0.0243***
	(0.0103)	(0.00459)	(0.0110)	(0.0257)	(0.00484)	(0.00906)
Big city	1.122***	1.631***	1.056***	1.608***	1.588***	1.895***
	(0.0518)	(0.0493)	(0.0519)	(0.0959)	(0.0481)	(0.0679)
Observations	1140812	1140812	813141	327671	813141	327671

* p<0.10 ** p<0.05 *** p<0.01

Table 6.5: Codebook

VARIABLE NAME	VARIABLE	CODING RULE[32]
CANDIDATE PERSISTANCE	Persistence on running for office in t+1	0=No 1=Yes
CANDIDATE PERSISTENCE 2	Persistence on running for office in t+1	0=No 1=Yes, same office 2=Yes, higher rank office
FEMALE	Gender of the candidate	0=Male 1=Female Coded using the first name of candidates
% OF VOTES	Margin of defeat/victory	For losers: distance respect to the last winner inside the coalition For winners: distance respect to the first loser inside the coalition
LOSING	Outcome of election t	0=Won the seat 1=Lost the seat
OFFICE GOVERNOR	Whether the candidate holds a governor's office at t	0=No 1=Yes
OFFICE SENATOR	Whether the candidate holds a senator's office at t	0=No 1=Yes
OFFICE FEDERAL DEPUTY	Whether the candidate holds a federal deputy's office at t	0=No 1=Yes
OFFICE STATE DEPUTY	Whether the candidate holds a state deputy's office at t	0=No 1=Yes
OFFICE MAYOR BIG MUNICIPALITY	Whether the candidate holds a mayor's office of a big municipality at t (more than 199,999 voters)	0=No 1=Yes
OFFICE MAYOR	Whether the candidate holds the mayor's office of a small municipality at t (less than 200,000 voters)	0=No 1=Yes
OFFICE CITY COUNCIL	Whether the candidate holds the city council's office at t	0=No 1=Yes
CANDIDATE GOVERNOR	Whether the candidate had run for a governor's office at t but she/he did not win the seat	0=No 1=Yes
CANDIDATE SENATOR	Whether the candidate had run for a senator's office at t but	0=No 1=Yes

[32] Empty coding rule means that no specific coding rule was needed.

	she/he did not win the seat	
CANDIDATE FEDERAL DEPUTY	Whether the candidate had run for a federal deputy's office at t but she/he did not win the seat	0=No 1=Yes
CANDIDATE STATE DEPUTY	Whether the candidate had run for a state deputy's office at t but she/he did not win the seat	0=No 1=Yes
CANDIDATE MAYOR BIG MUNICIPALITY	Whether the candidate had run for a mayor's office in a big municipality at t but she/he did not win the seat (more than 199,999 voters)	0=No 1=Yes
CANDIDATE MAYOR	Whether the candidate had run for a mayor's office in a small municipality at t but she/he did not win the seat (less than 200,000 voters)	0=No 1=Yes
CANDIDATE CITY COUNCIL	Whether the candidate had run for a city council's Office at t but she/he did not win the seat	0=No 1=Yes
SUPPORT FOR WOMEN IN POLITICS	Support for women in politics at the state level	State-year average of support for women in politics. Calculated from LAPOP survey data. For missing values I used missing data imputation based on a) state, b) year, and c) region. Source: Latin America Public Opinion Project 2007-2014. Original question: "In general, men are better political leaders than women; do you strongly agree, agree, disagree, or strongly disagree?" Positive values indicate more support for women. Election years were merged with the closest previous year of the survey
BIG CITY	Size of the district in terms of voters	0=Less than 200,000 voters 1=More than 199,999 voters=1

		Note: 200,000 voters is the legal threshold in Brazil to define the electoral system for Mayor elections (Simple plurality or majority)
GENDER QUOTA	Presence of a regulated gender quota in the election	0=Elections held before 2009 1=Elections held after 2009
CANDIDATES COMPETING IN DISTRICT	Number of candidates competing at the district-year	
CANDIDATES COMPETING IN COALITION	Number of candidates competing at the coalition district-year	
CANDIDATES COMPETING IN PARTY	Number of candidates competing at the party-coalition district-year	
DISTRICT MAGNITUDE	Seats at stake in a district-year	
COALITION MAGNITUDE	Number of seats won by a coalition in a given district-year	
PARTY MAGNITUDE	Number of seats won by a party-coalition in a given district-year	
% OF WOMEN ELECTED	Percentage of women elected in a given election	Values obtained by collapsing the candidate at data the district-year level
% OF WOMEN WITH CANDIDATE EXPERIENCE	Percentage of women with previous experience as candidate in t-1	Values obtained by collapsing the candidate at data the district-year level
% OF MEN WITH CANDIDATE EXPERIENCE	Percentage of men with previous experience as candidate in t-1	Values obtained by collapsing the candidate at data the district-year level
% OF FEMALE INCUMBENT RUNNING	Percentage of female incumbents	Values obtained by collapsing the candidate at data the district-year level
% OF MALE INCUMBENT RUNNING	Percentage of male incumbents	Values obtained by collapsing the candidate at data the district-year level
NUMBER OF WOMEN RUNNING	Number of women running in a given district-year	Values obtained by collapsing the candidate at data the district-year level

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